

DRAINAGE . .
PROBLEMS . .
OF THE EAST.

BY

C. C. JAMES.

PLANS

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N4

Presented by

.....C. C. James, Esq., M. Inst. C. E.,.....

.....June 19 18.....



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Drainage Problems of the East

By

C. C. JAMES

Member of the Institute of Civil Engineers; Fellow of the
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—VENTILATION ON THE SHONE SYSTEM—

—SCALE 8 FEET TO AN INCH—

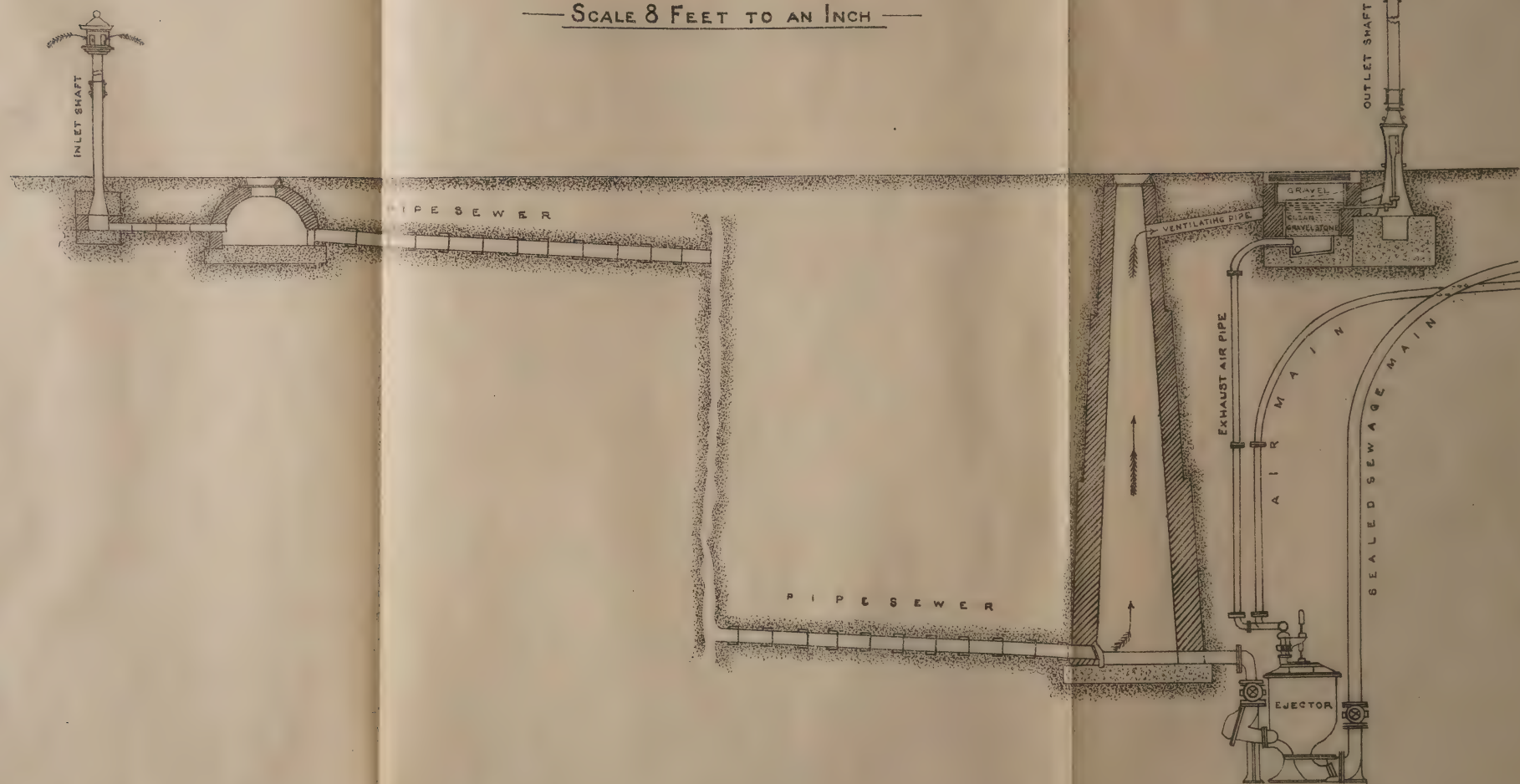


PLATE No 1

— VENTILATION OF THE HOUSEHOLD —

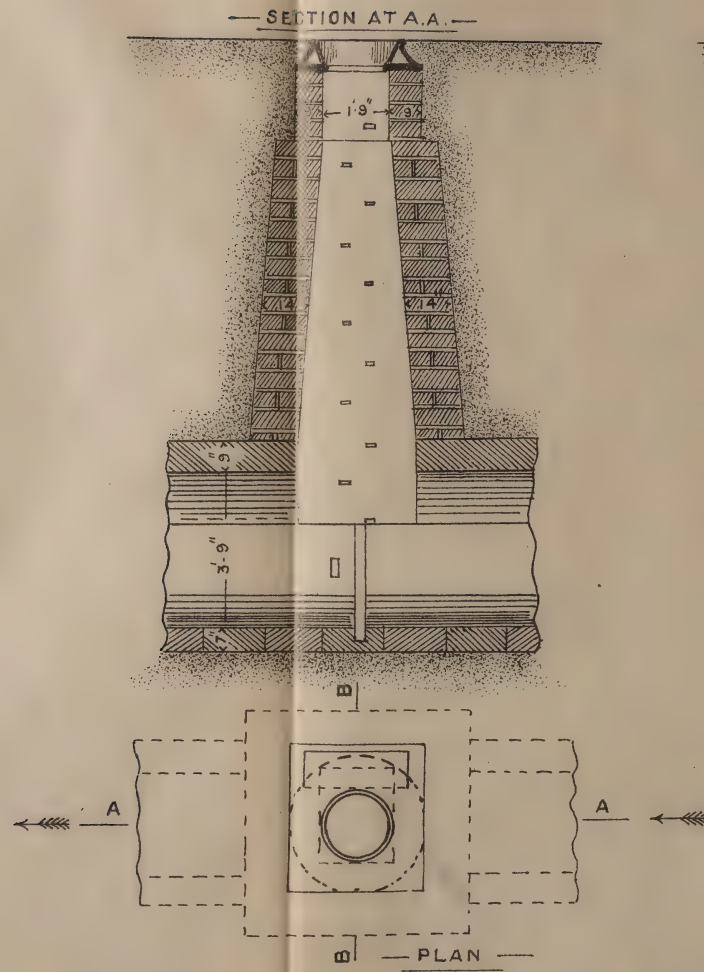
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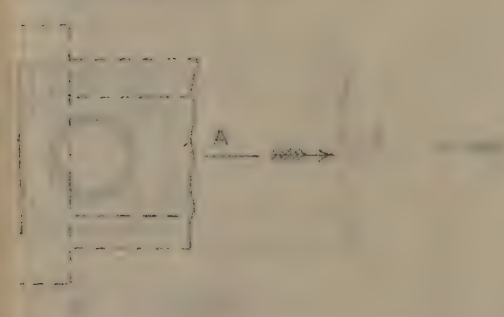
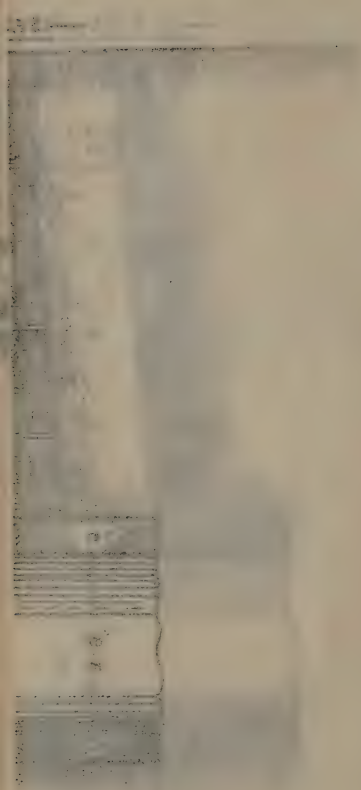


— DETAILS OF MANHOLES ON OVOID SEWER —

— SCALE 4 FEET TO AN INCH —

PLATE 2.

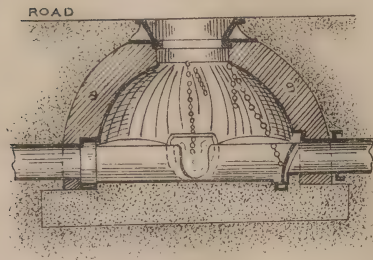




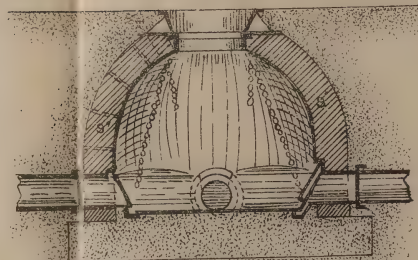
DETAILS OF CIRCULAR MANHOLES ON PIPE SEWERS

—SCALE 4 FEET TO 1 INCH—

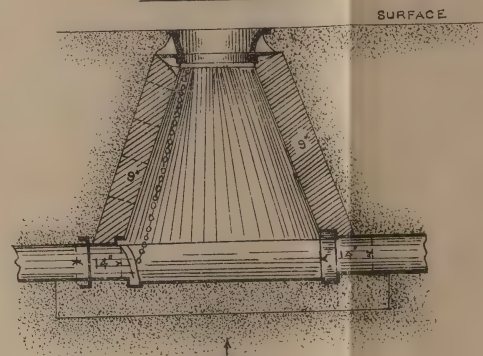
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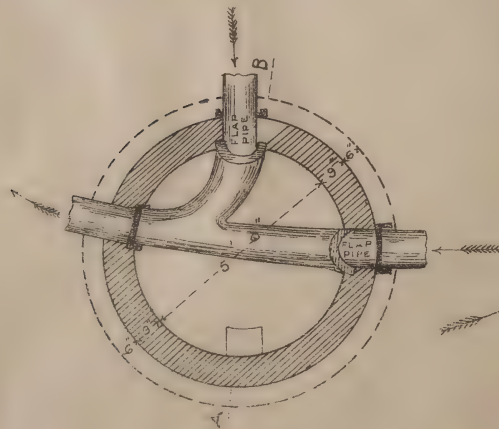
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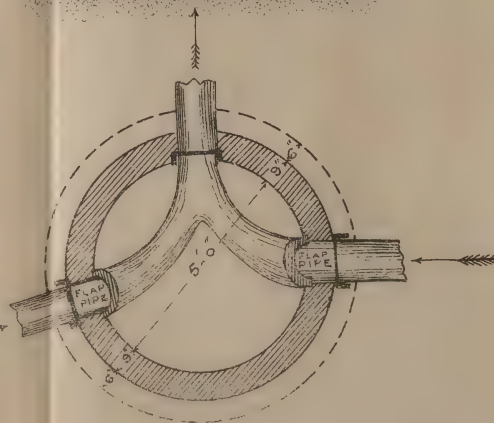
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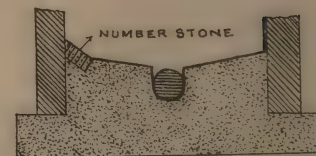
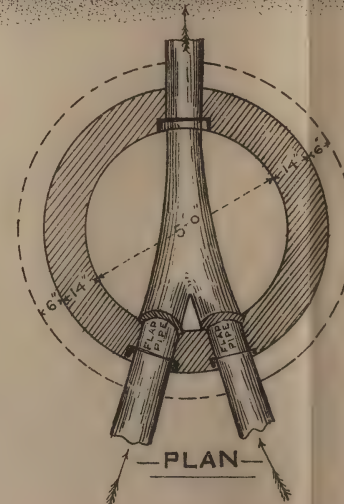
—PLAN—



—PLAN—

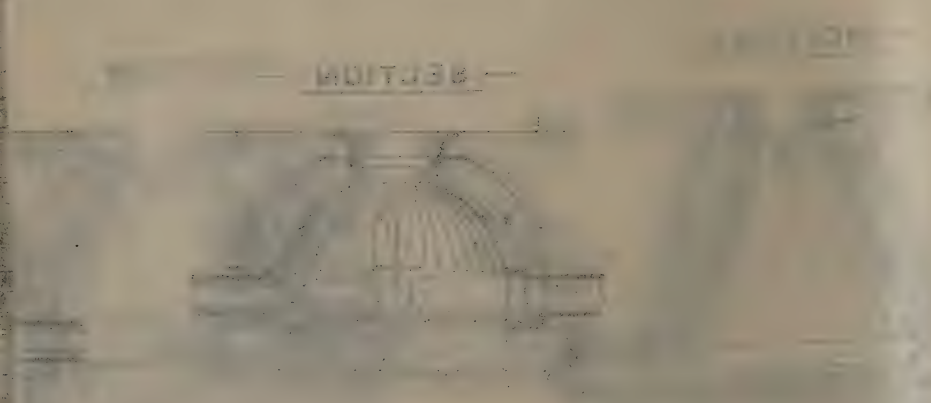


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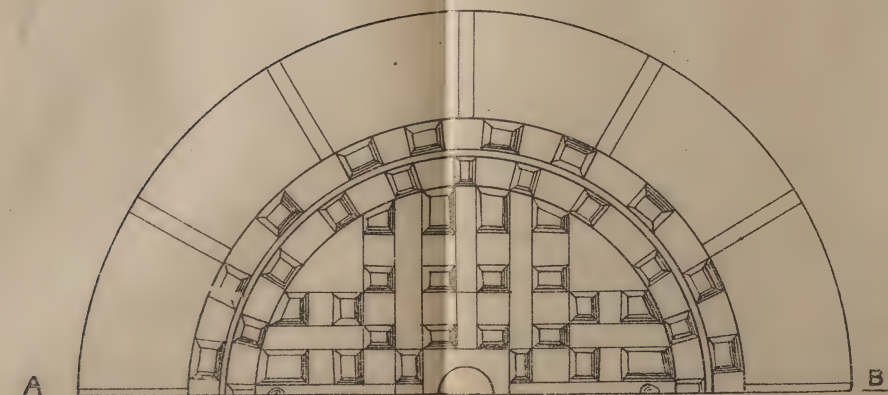
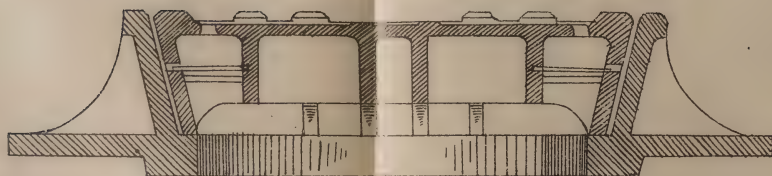
—SECTION AT A.B.—

DETAILS OF THE ...



— C.I. CIRCULAR FRAMES & COVERS FOR MANHOLES. —

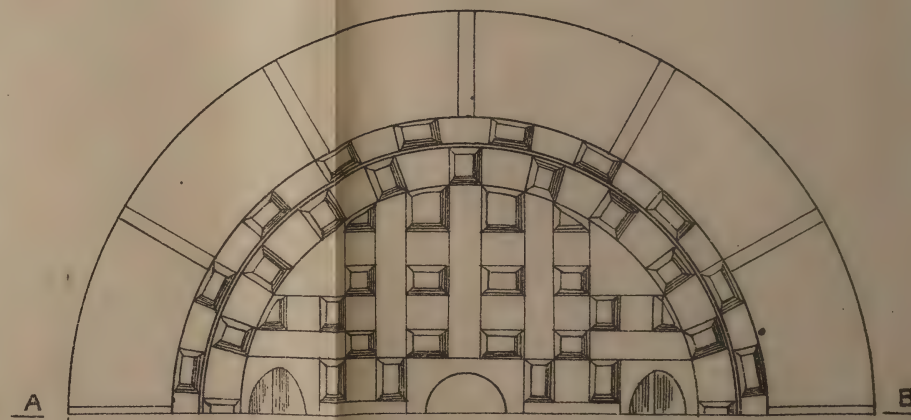
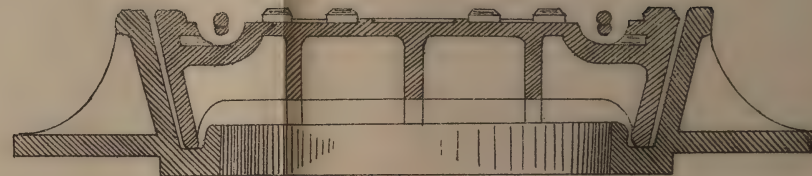
— SECTION AT A.B. —



— HALF PLAN —

FIG 1.

— SECTION AT A.B. —

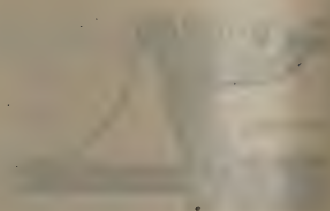


— HALF PLAN —

FIG 2.

— 2 — *Содержание* —

— 3 —



— 4 —

DETAILS OF FLUSHING TANK
WITH AUTOMATIC ANNULAR SYPHON
SCALE 4 FEET TO 1 INCH

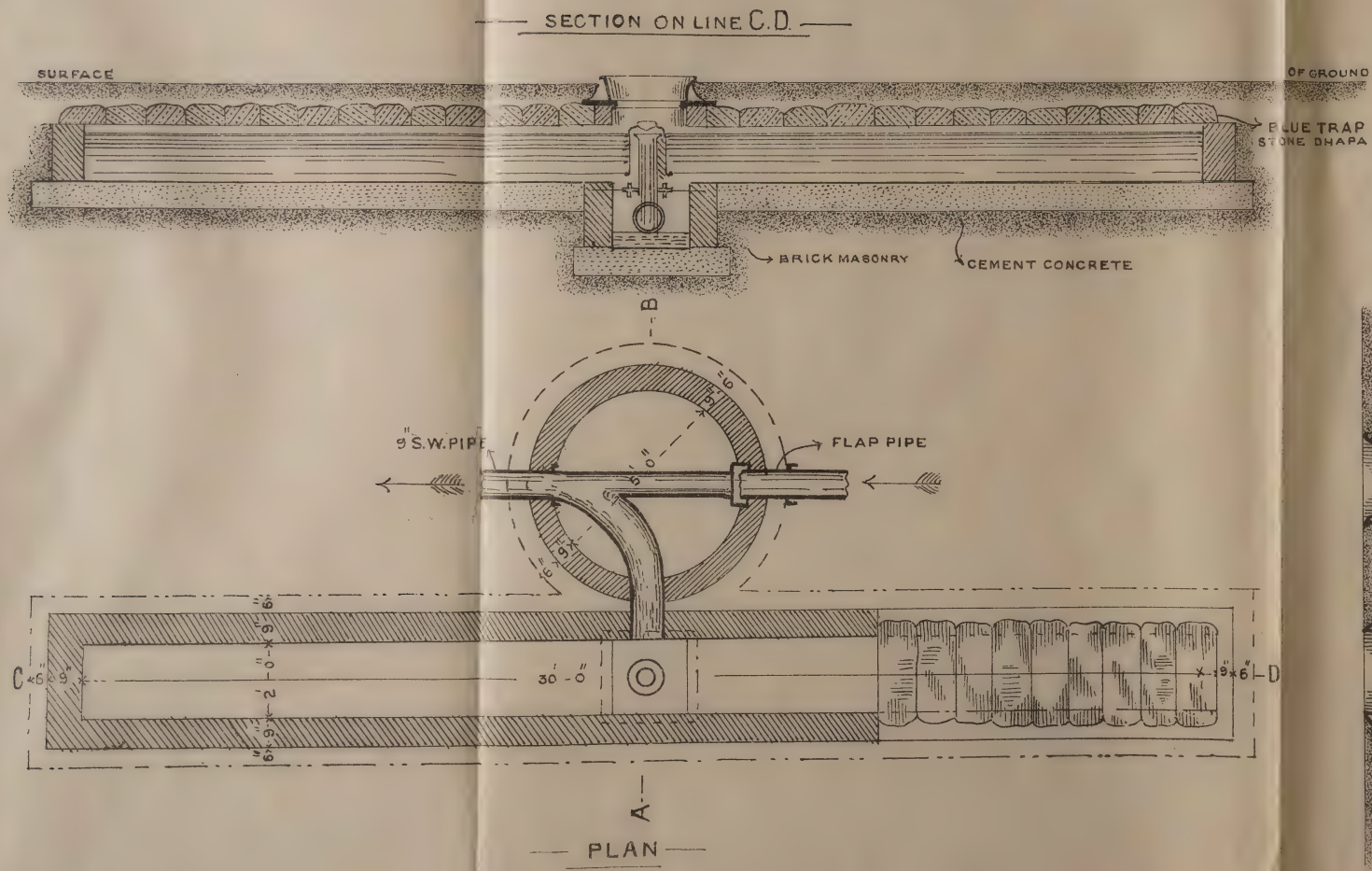
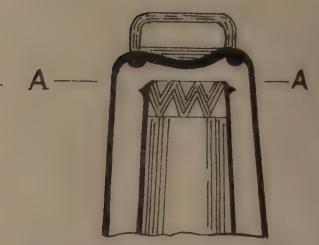
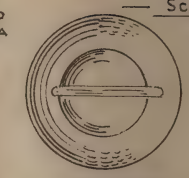


PLATE 5



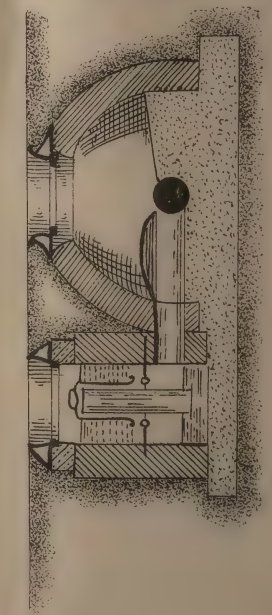
SCALE 1 INCH TO 1 FOOT



TOP PLAN



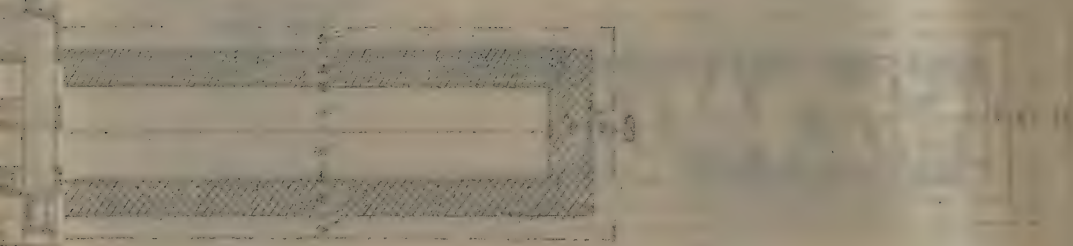
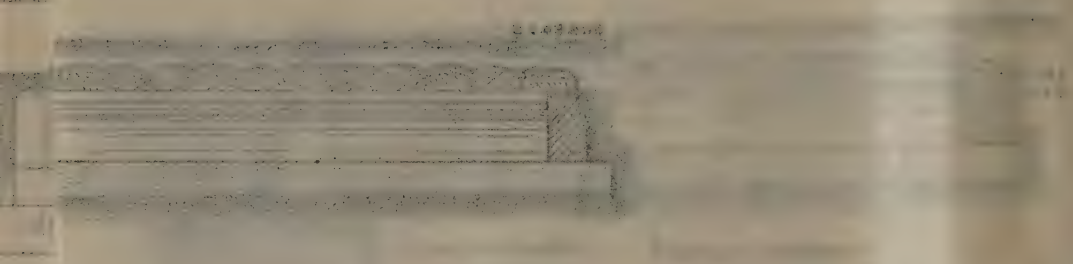
PLAN AT A.A.



SECTION ON LINE A.B.

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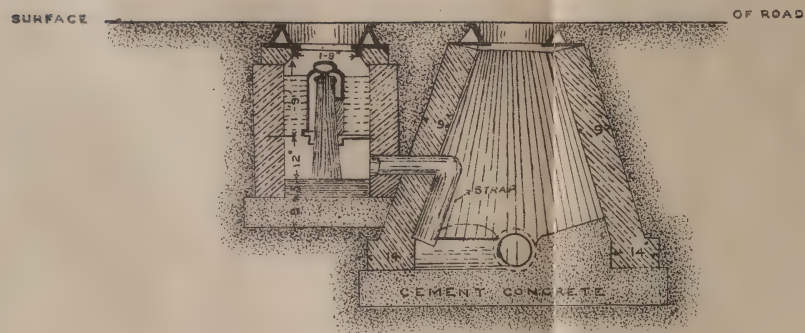
FIG.



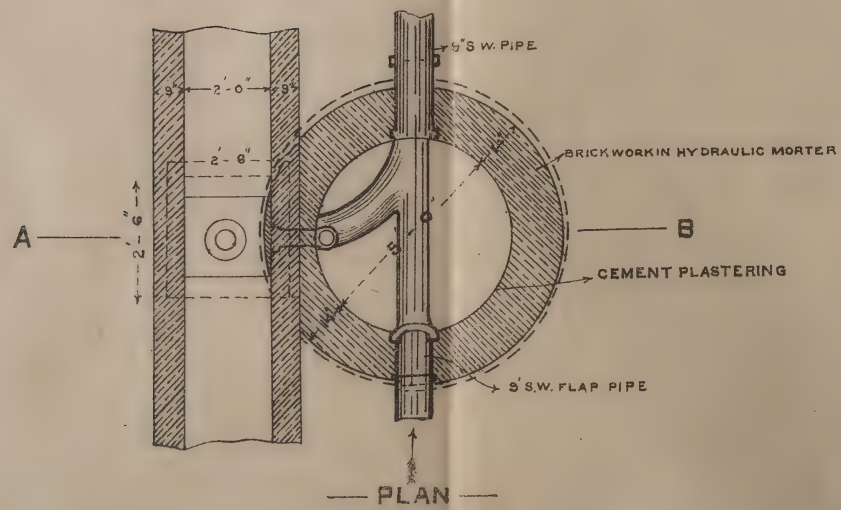
END

DETAILS OF CONNECTION BETWEEN FLUSH TANK & MANHOLE

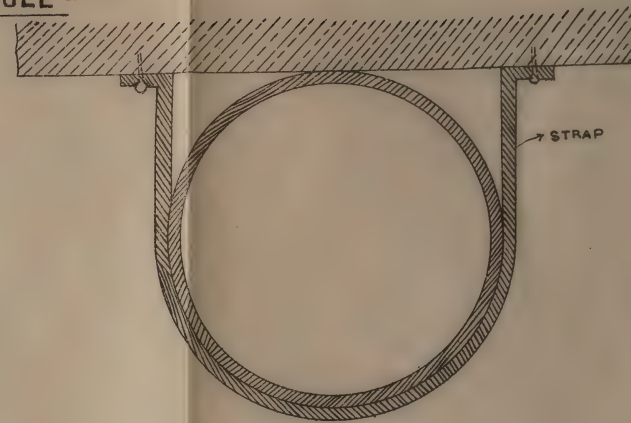
SCALE 4 FEET TO 1 INCH



SECTION ON LINE A B

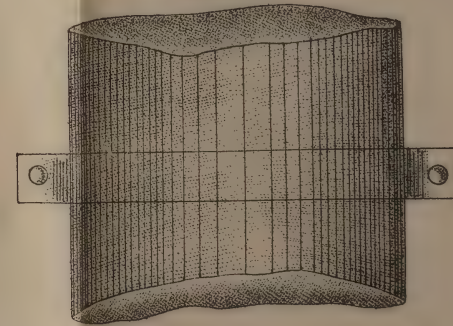


PLAN



PLAN

STRAP

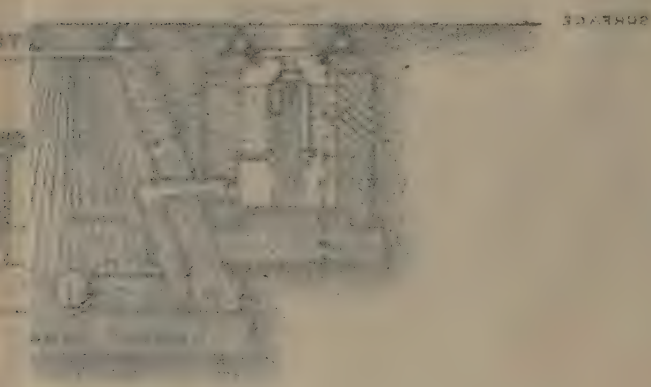


ELEVATION

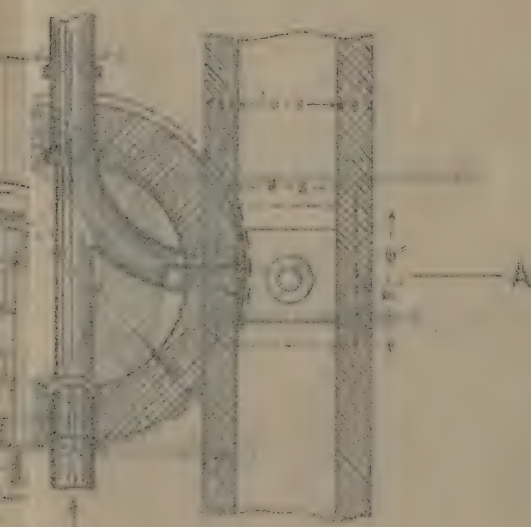
SCALE 2 INCHES TO 1 FOOT

DETAILS OF THE NEWTON'S CRANE

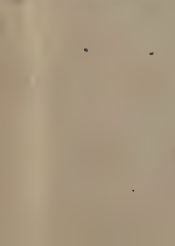
SCALE 4 FEET TO 1 INCH



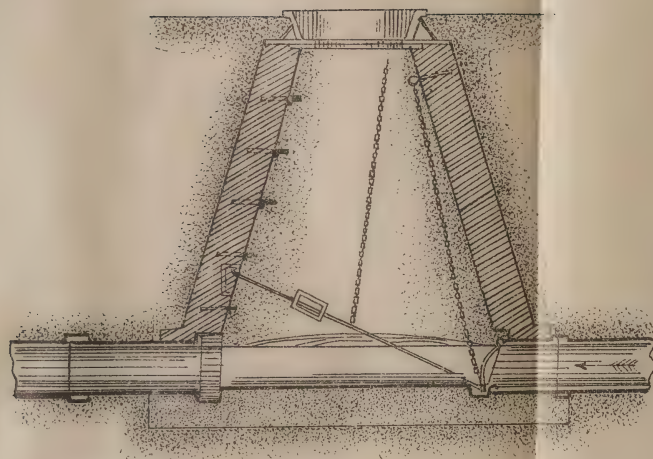
SECTION ON



PLAN

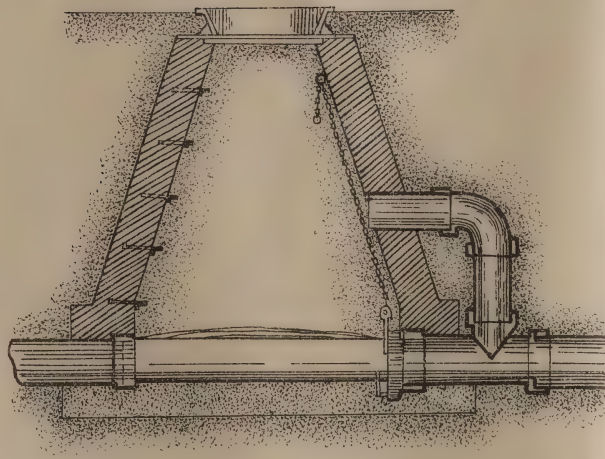


—FLAP-VALVES & DISC-VALVES ON PIPE SEWERS—



—FLAP-VALVE—

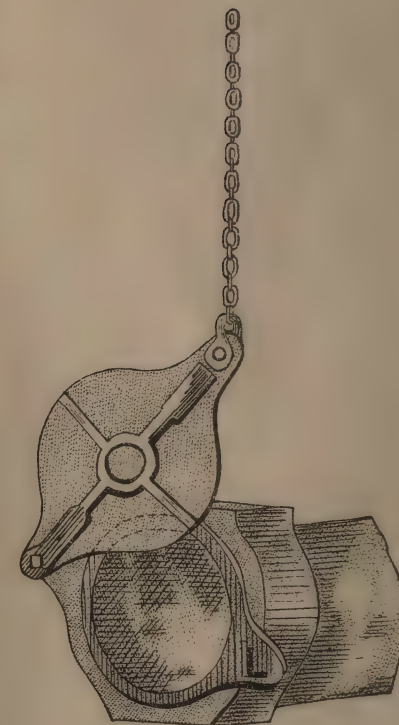
FIG. 1



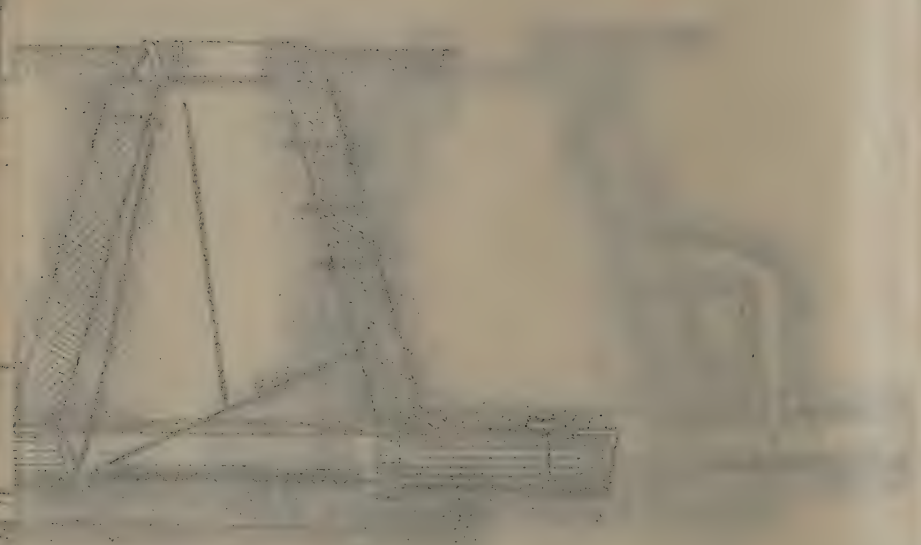
—DISC-VALVE—

FIG. 2

—SCALE 3 FEET TO AN INCH—



PAVEMENT & DRAINAGE ON PIPE SEW



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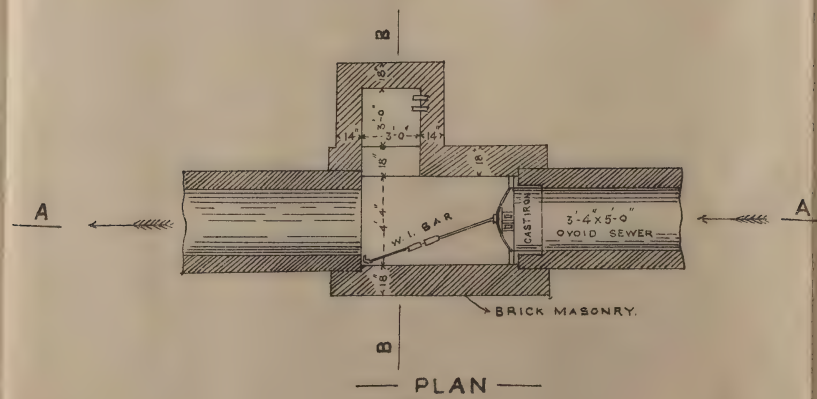
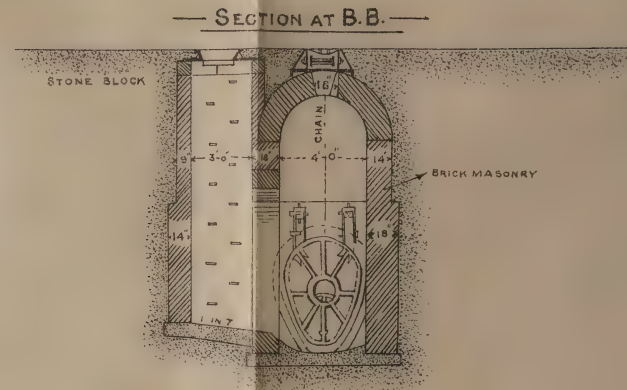
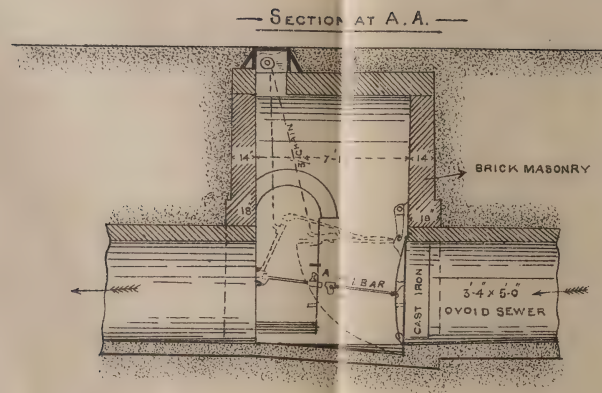
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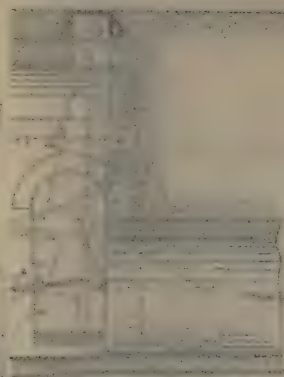
— TIDAL FLAP ON AN OVOID SEWER 3'4" x 5'0" —

PLATE 8.

— SCALE 8 FEET TO AN INCH —



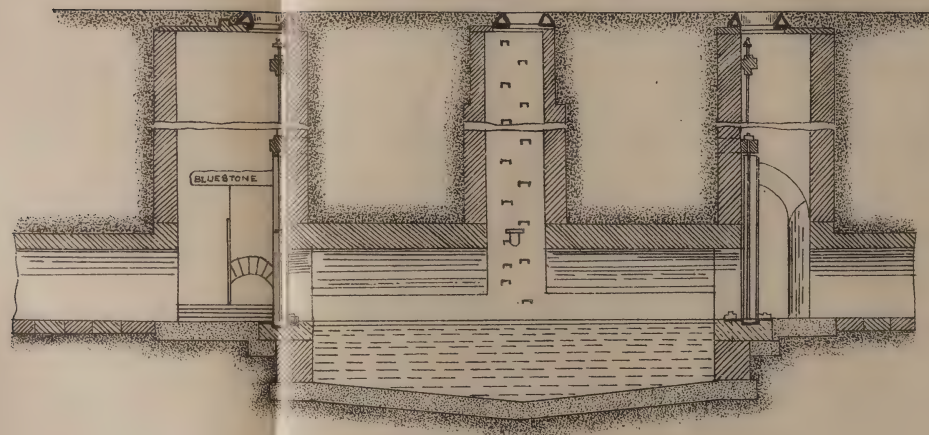
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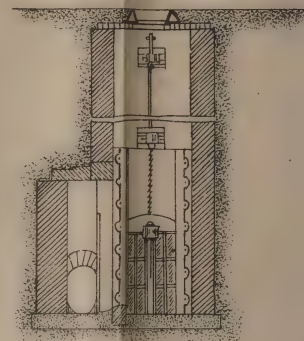
CATCH-PIT ON OVOID SEWER (2'-6" x 3'-9")

SCALE 8 FEET TO AN INCH

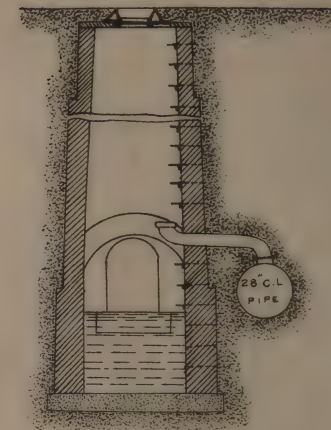
SECTION AT A A



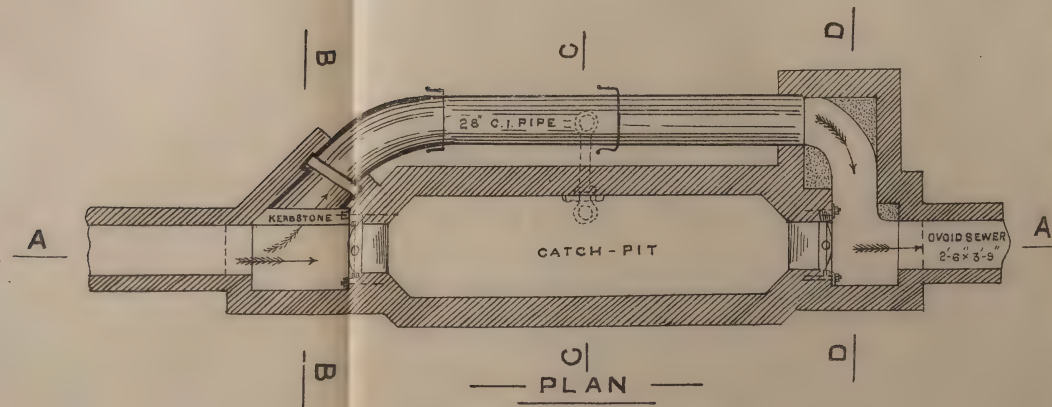
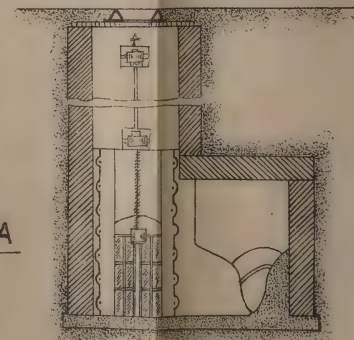
SECTION AT B B



SECTION AT C C

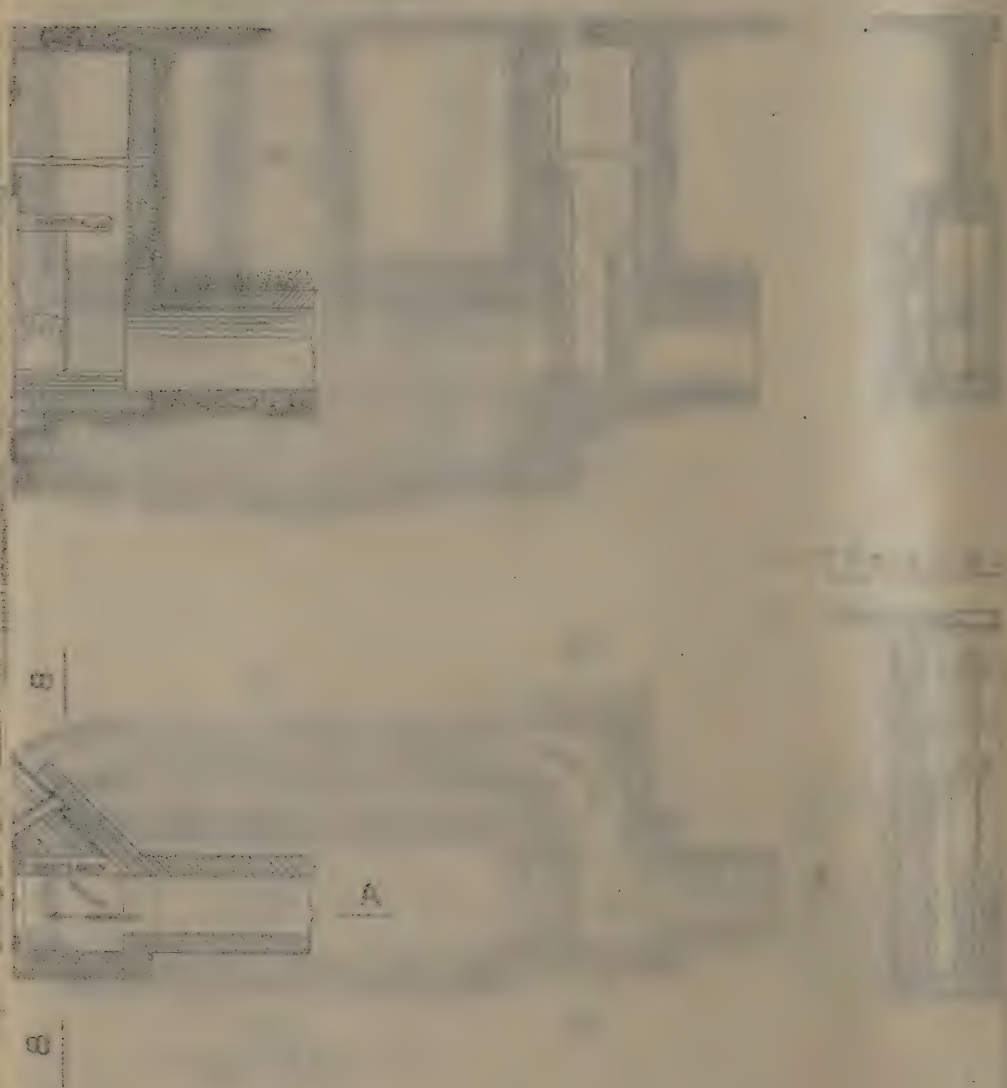


SECTION AT D D



SECTION A-A

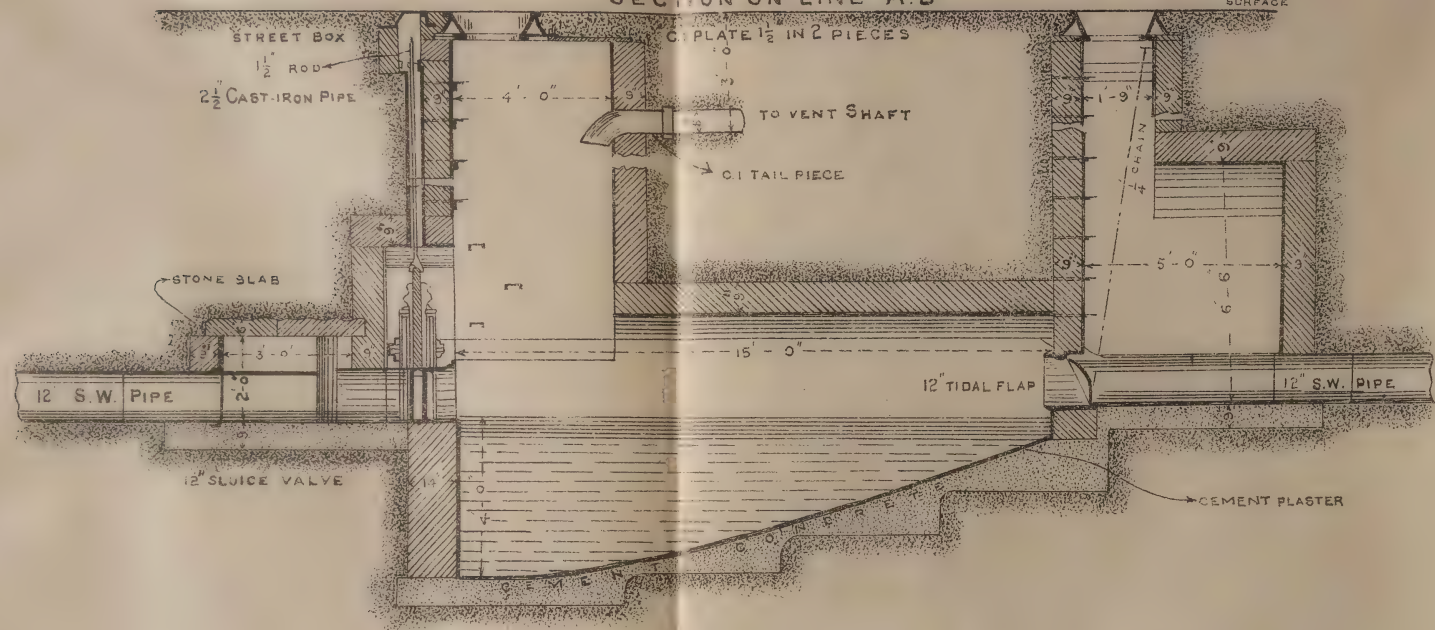
Scale



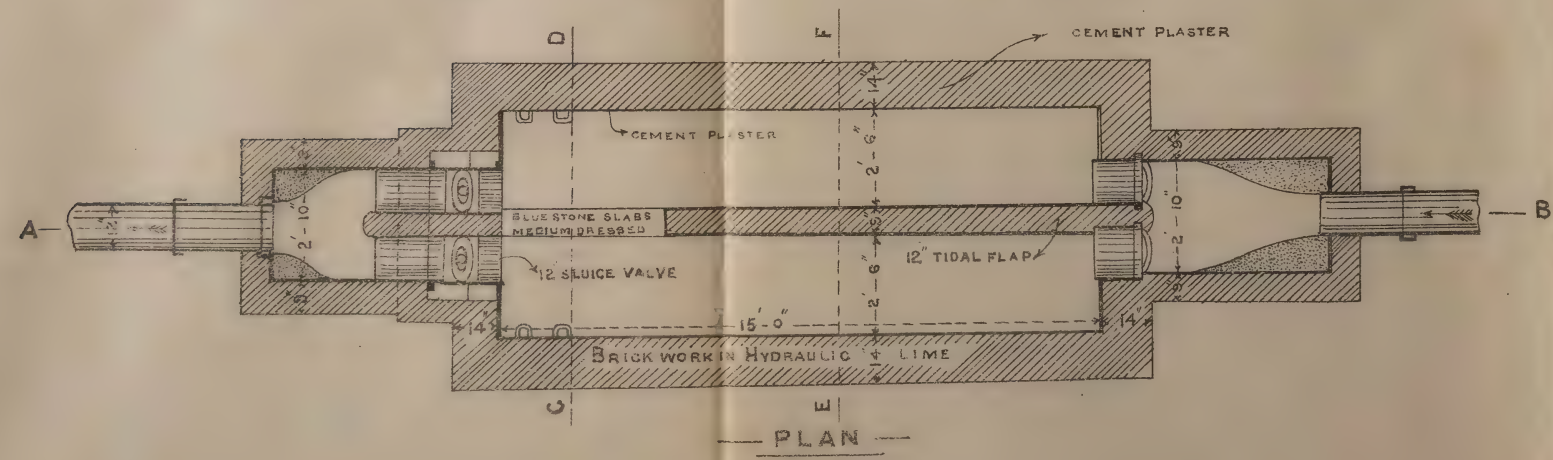
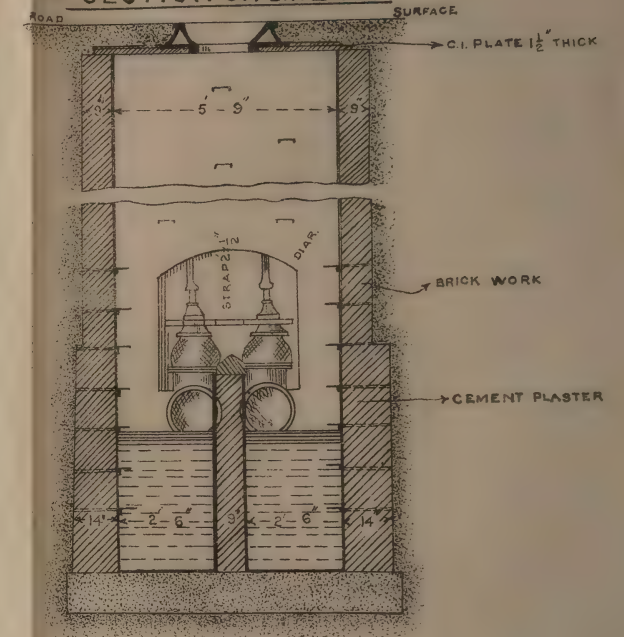
DETAILS OF CATCH-PIT TO BE PLACED ON END OF PIPESEWER WHERE IT MEETS THE MAIN SEWER

SCALE OF 4 FEET TO AN INCH

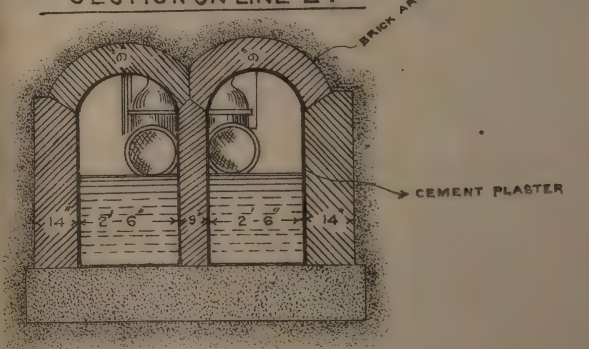
SECTION ON LINE A.B



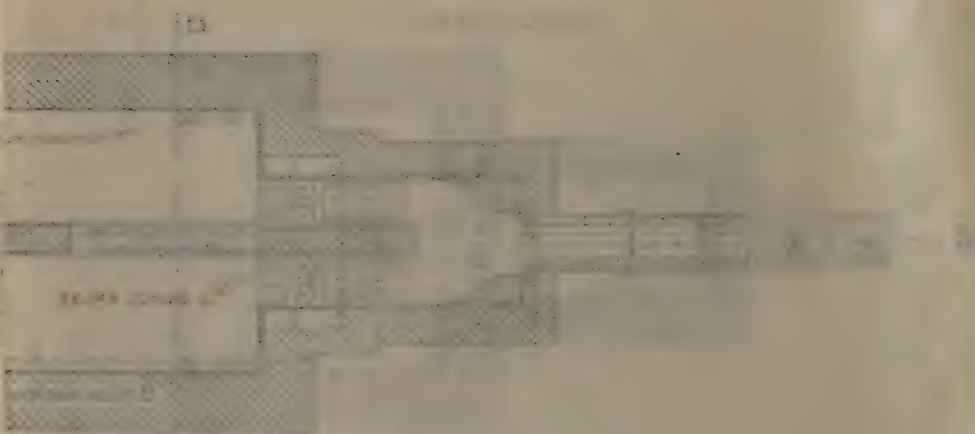
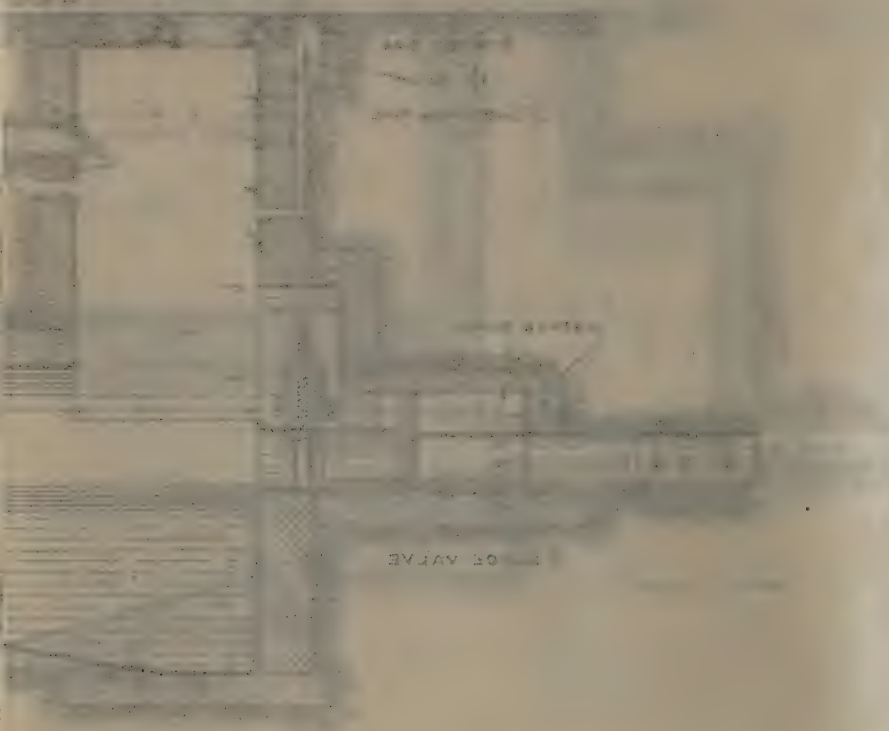
SECTION ON LINE C.D



SECTION ON LINE E.F



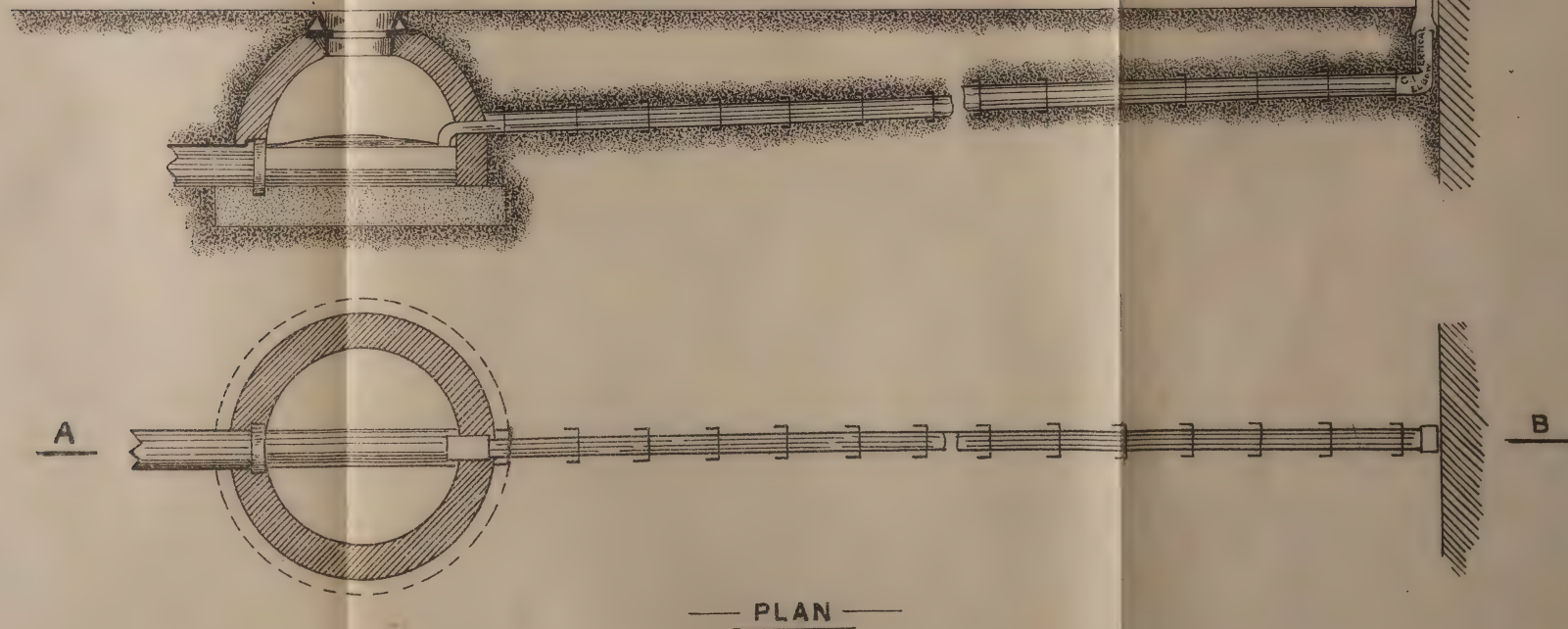
DETAILS OF CATCH-PIT

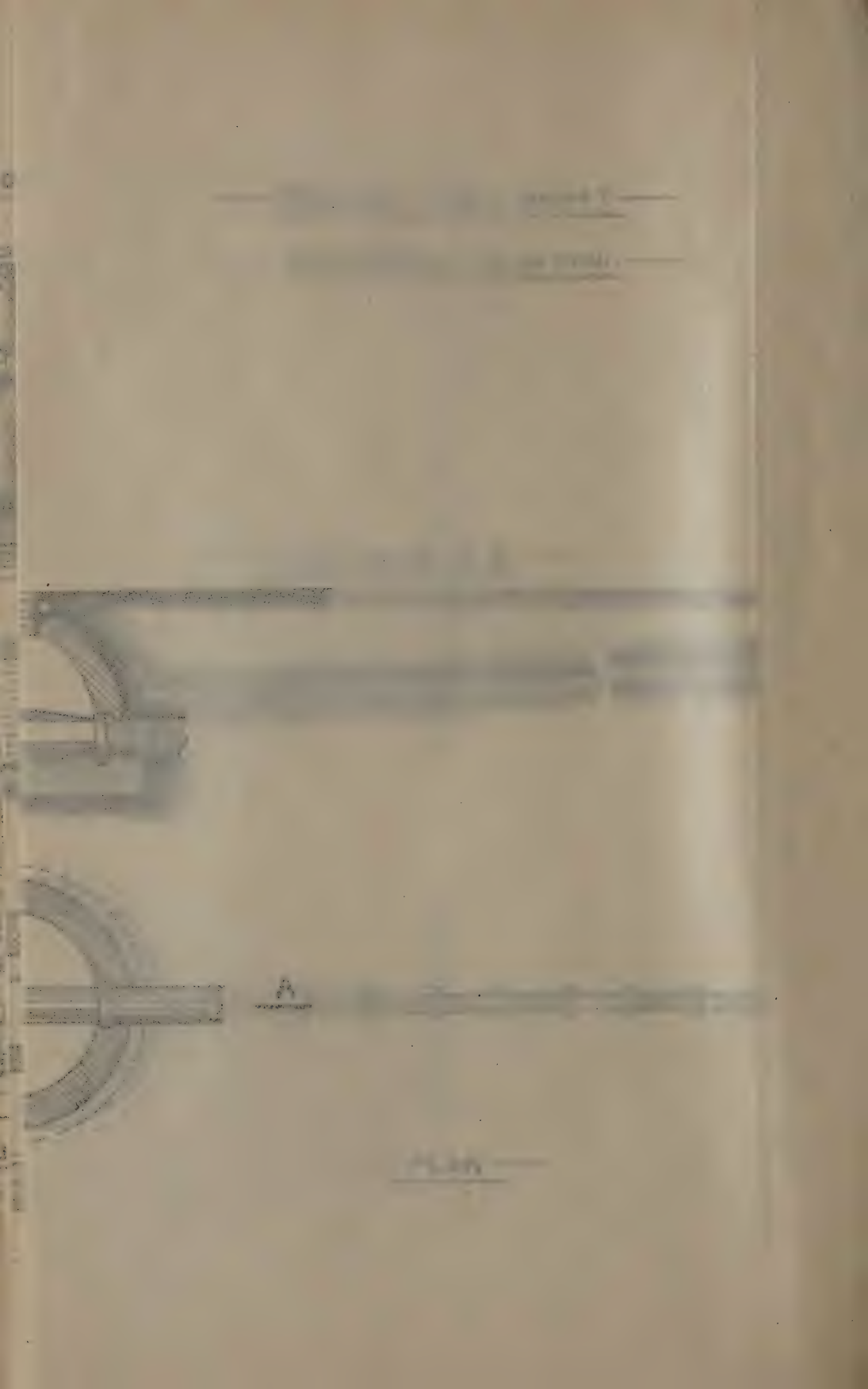


— METAL VENT-SHAFT —

— SCALE 4 FEET TO AN INCH. —

— SECTION AT A.B. —





SECTION ———

— C.I. CIRCU —

DETAIL AT A ———

10" 12" 4" 2"

ZINC CAP 4 RIBS

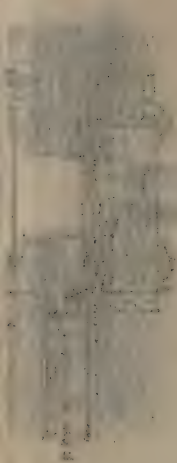


Technical drawing of a wooden beam with a central notch. The beam is shown in two parts: a left section and a right section, separated by a central gap. The left section has a total length of $1\frac{1}{2}' - 1\frac{1}{4}' + 1\frac{1}{2}'$ and a height of $10"$. The right section has a total length of $9' - 5\frac{1}{4}" + 2' - 10"$ and a height of $10"$. The beam is made of wood, with a central notch cut out. The drawing includes various annotations and dimensions, such as $1\frac{1}{2}' - 1\frac{1}{4}' + 1\frac{1}{2}'$, $9' - 5\frac{1}{4}"$, $2' - 10"$, and $10"$.

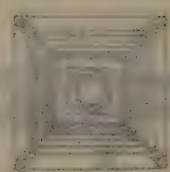


A diagram showing a vertical pipe with a flowmeter installed. The pipe is labeled "FLOWMETER" and has a "GROUND" line indicated. The flowmeter is shown in a cross-section view, with the pipe passing through it. The diagram is labeled "GROUND" and "LINE".

SCALE 4 FEET TO AN INCH



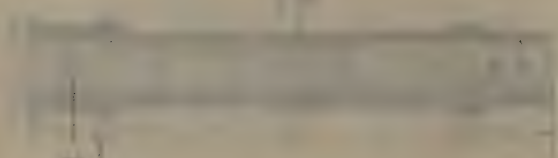
SECTIONAL ELEVATION



PLAN

SECTIONAL ELEVATION

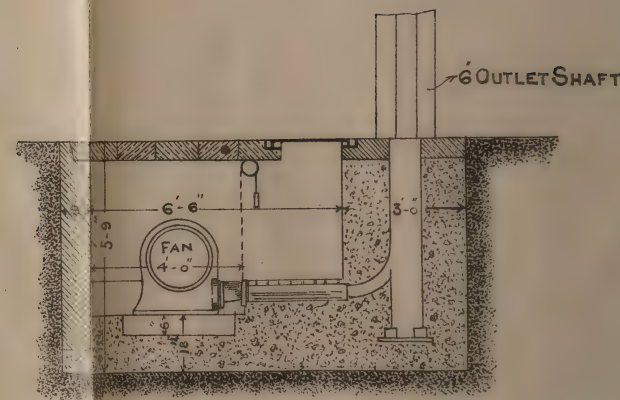
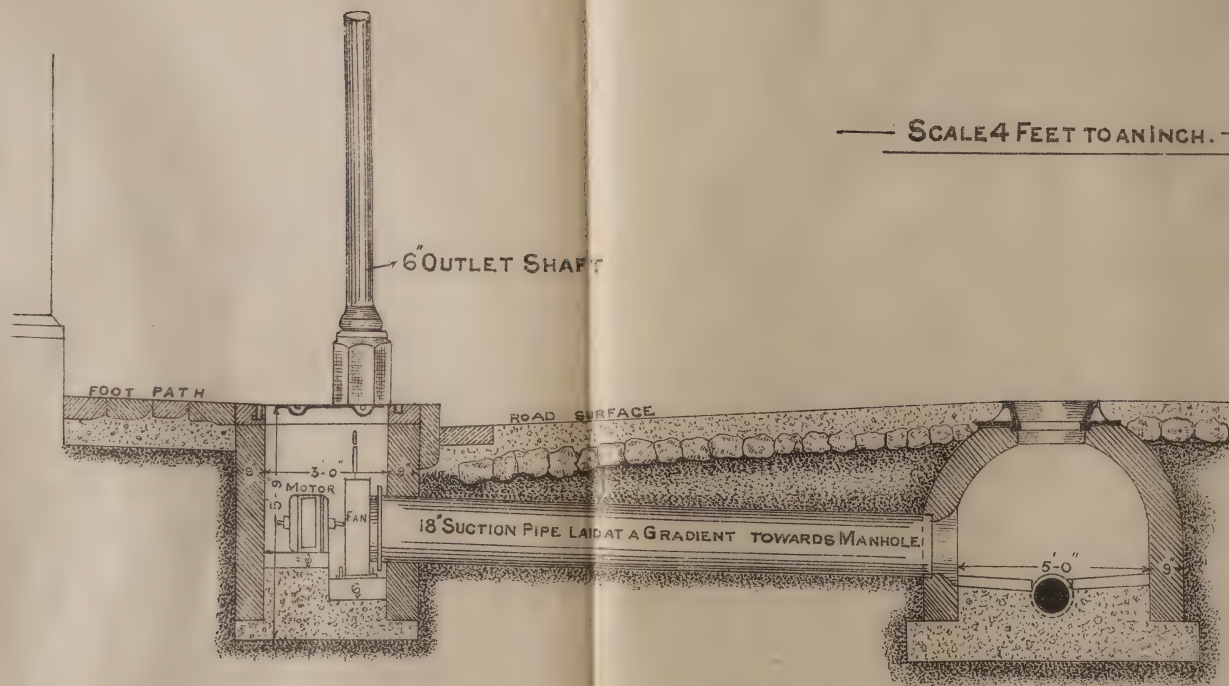
SECTIONAL ELEVATION



— 20TH CENTURY VENTILATION SYSTEM —

PLATE N^o 13.

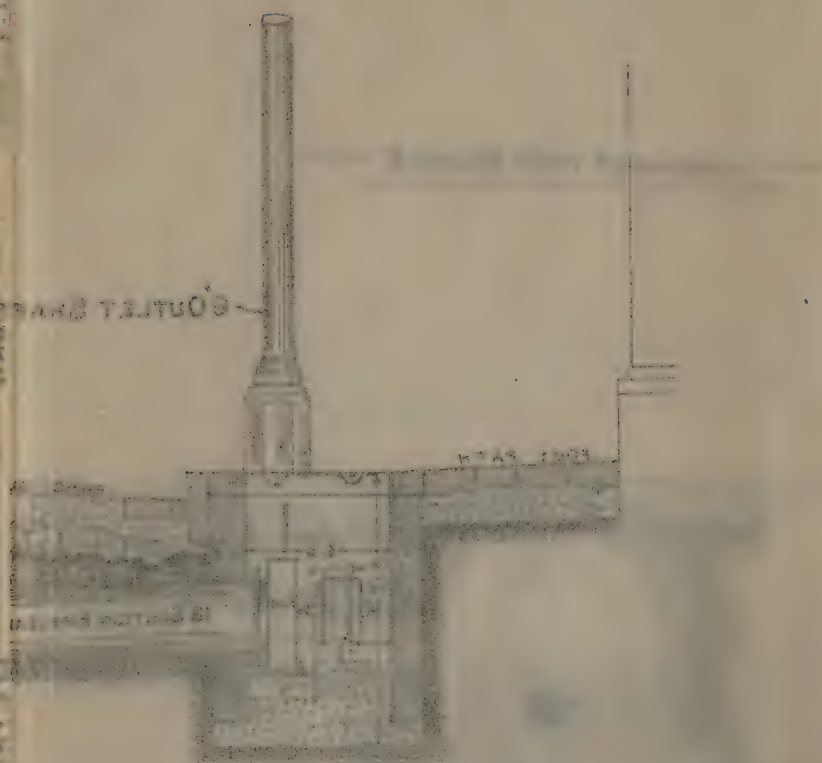
— SCALE 4 FEET TO AN INCH. —



— CROSS SECTION THRO' FAN STATION —

— CONNECTION OF SUCTION PIPE WITH MANHOLE —

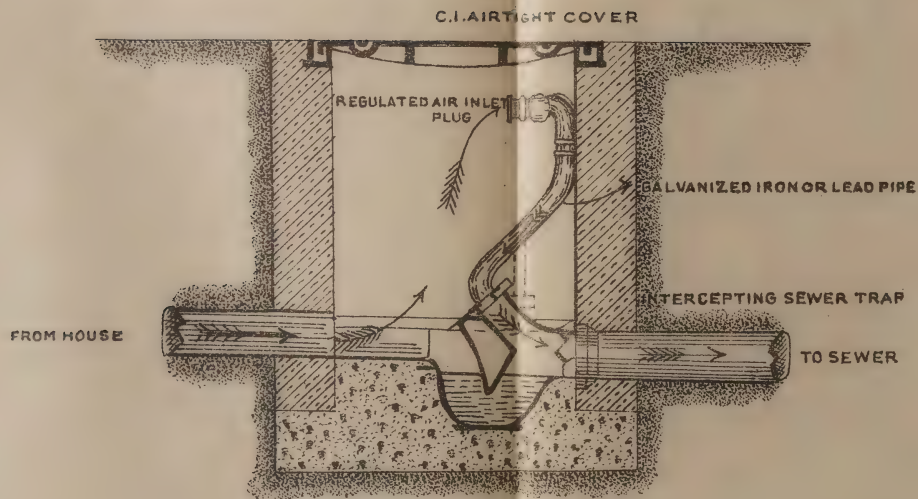
— SECTION SHOWING CONNECTION OF FAN TO OUTLET SHAFT —



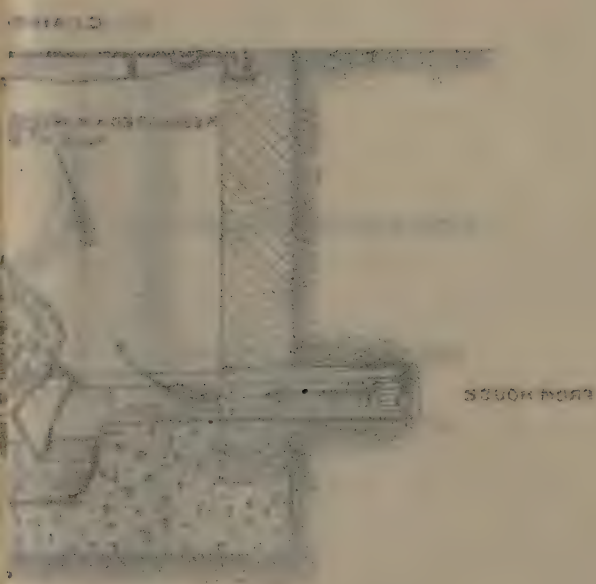
— CROSS SECTION THROUGH PUMP STATION —

20TH CENTURY VENTILATION SYSTEM.

PLATE 14.

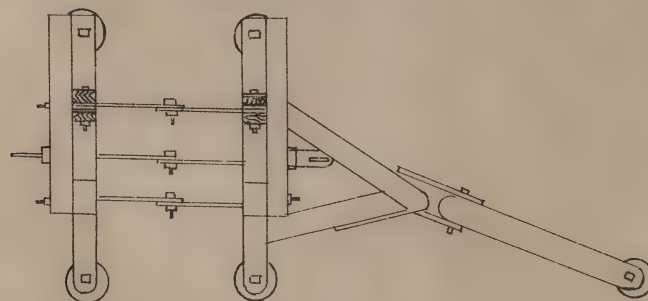


20th CENTURY VENTILATION

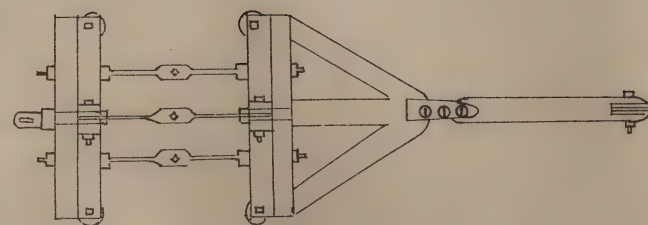
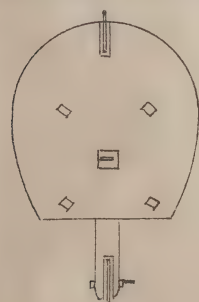


— SCRAPER FOR OVOID SEWER —

— SIDE ELEVATION —



— ELEVATION —



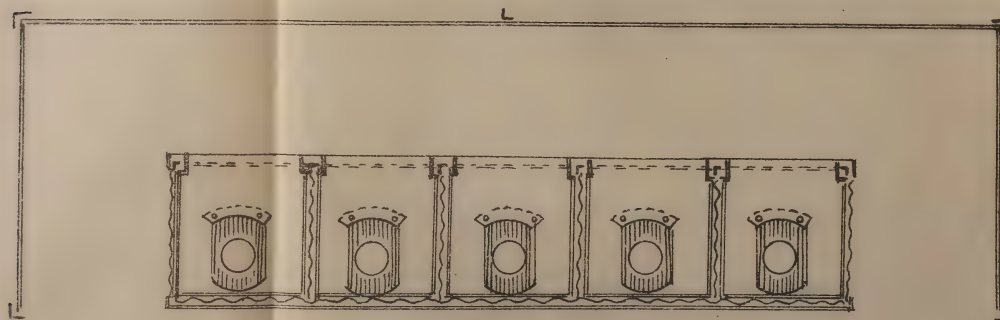
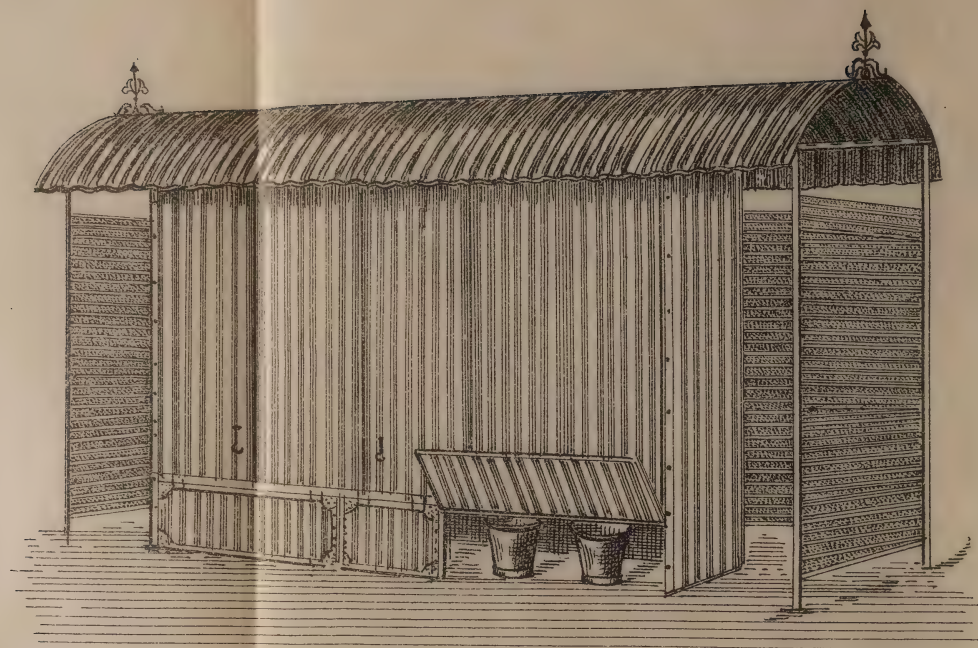
— PLAN —

ELEVATION

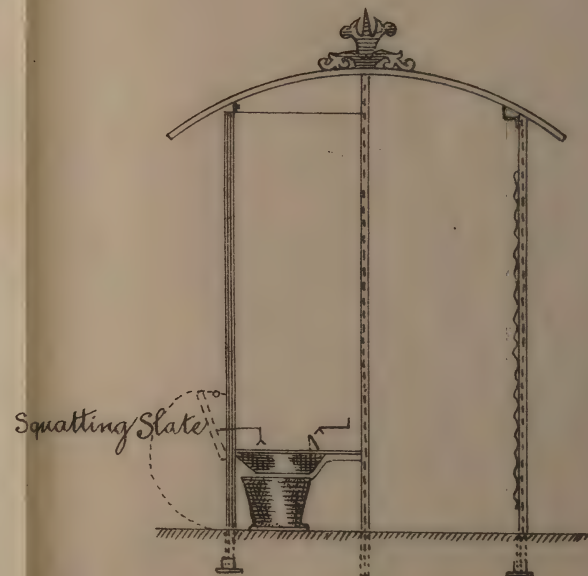


— HORBURY'S PATTERN PRIVY —

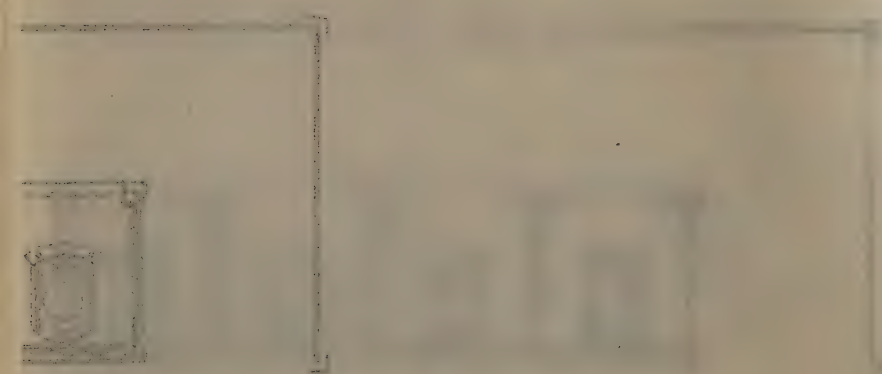
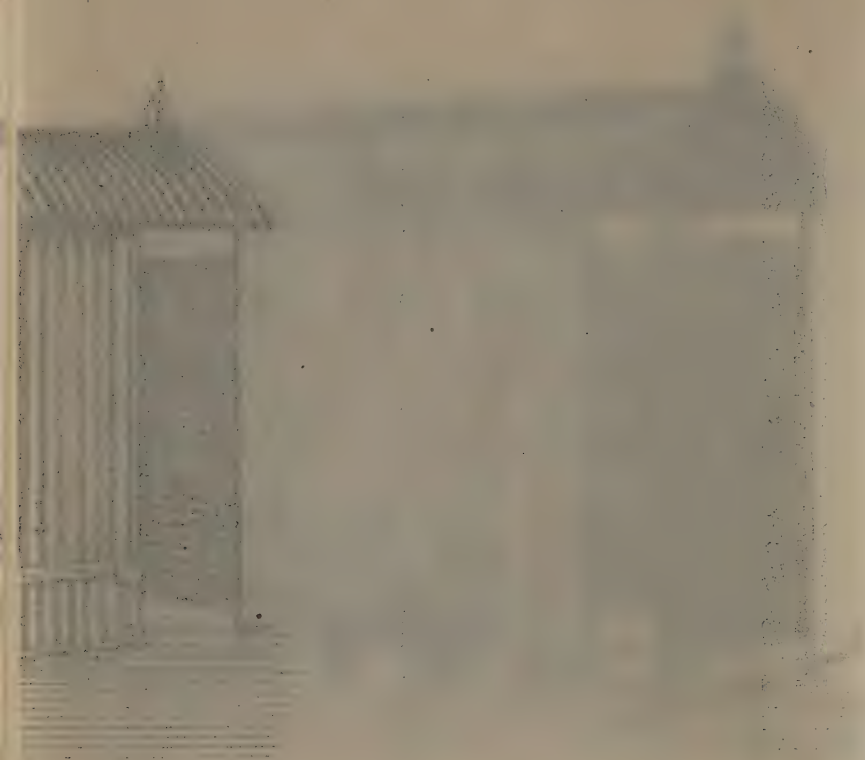
— FOR NATIVES —



— PLAN —

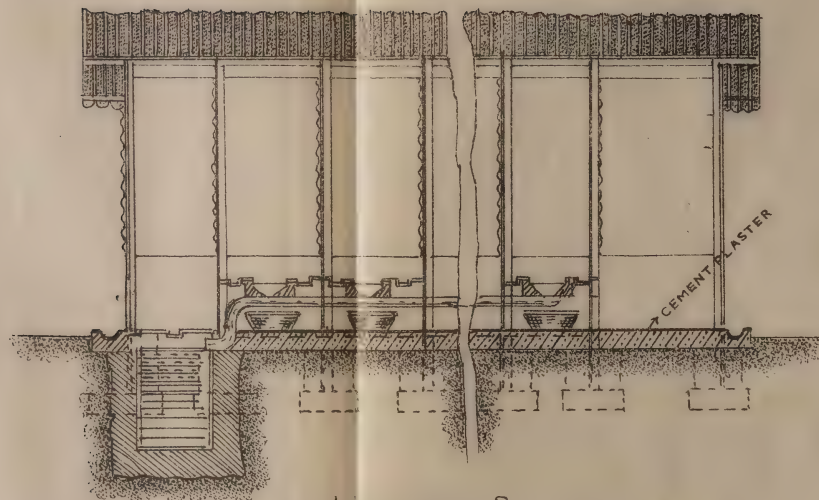


— CROSS SECTION —

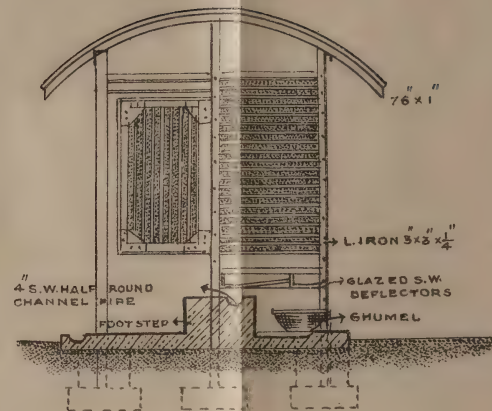


DONALDSON'S PATTERN PRIVY

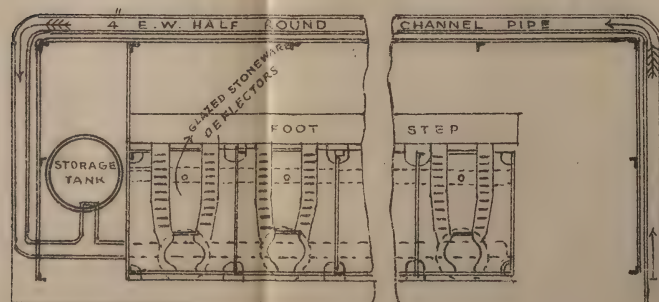
PLATE 17



— LONGITUDINAL SECTION —



— CROSS SECTION —



— PLAN —

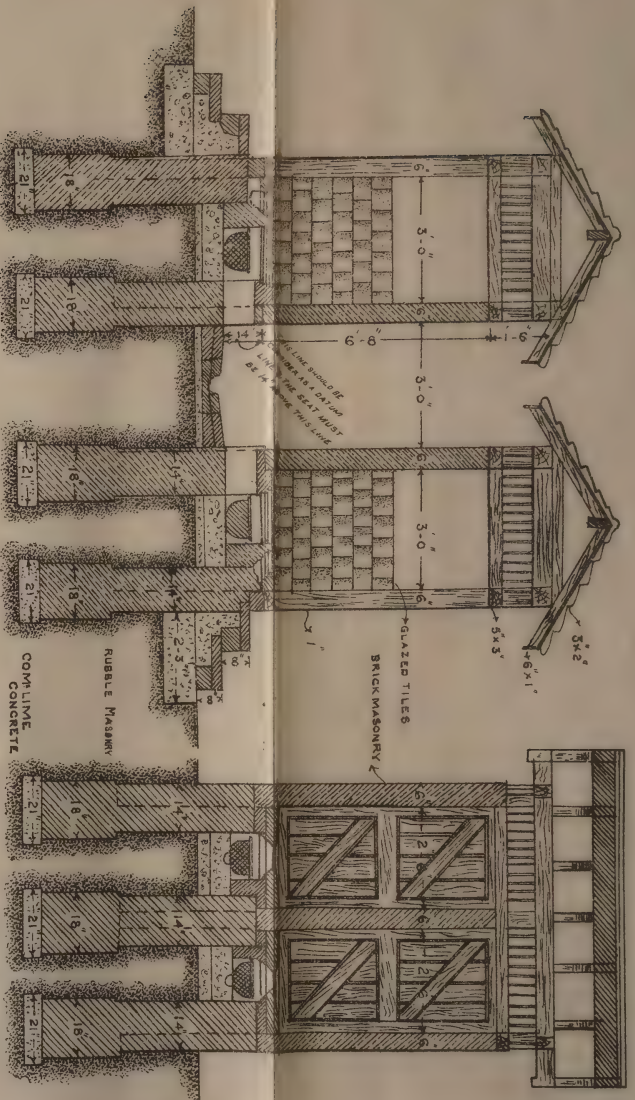
— SCALE 4 FEET TO AN INCH. —

AND'S PATENT



BASKET SYSTEM PRIVY

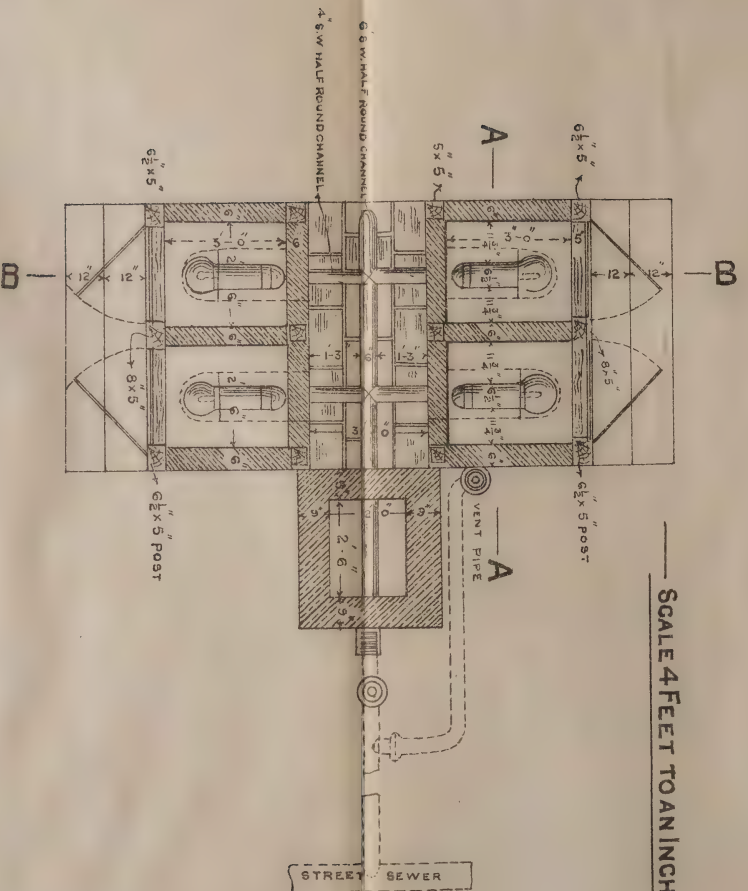
PLATE 18



SECTION AT B B

SECTION AT A A

SCALE 4 FEET TO AN INCH



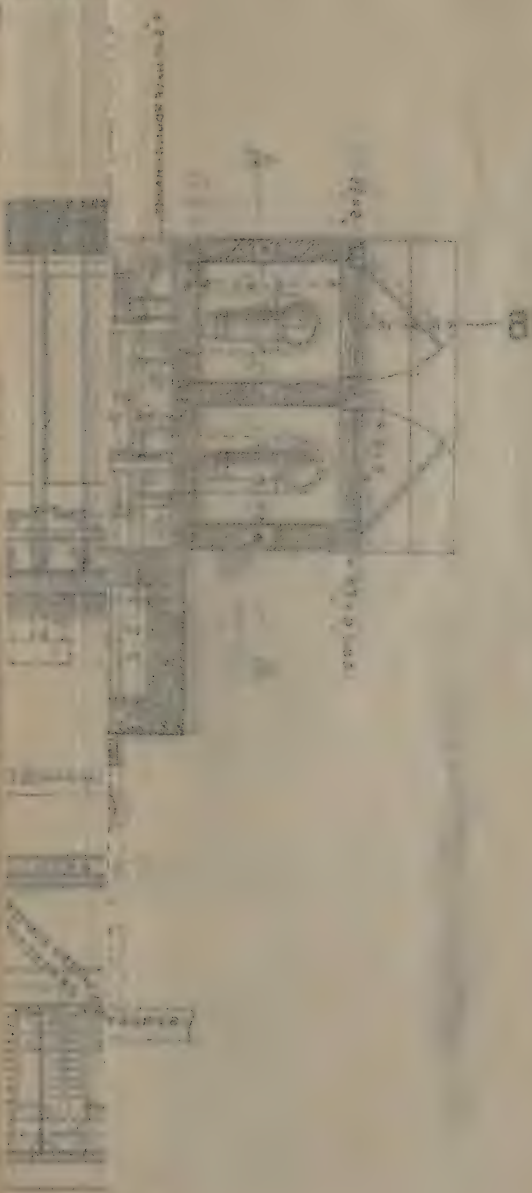
PLAN

新刊 增補 日本書紀

— 卷之五 —

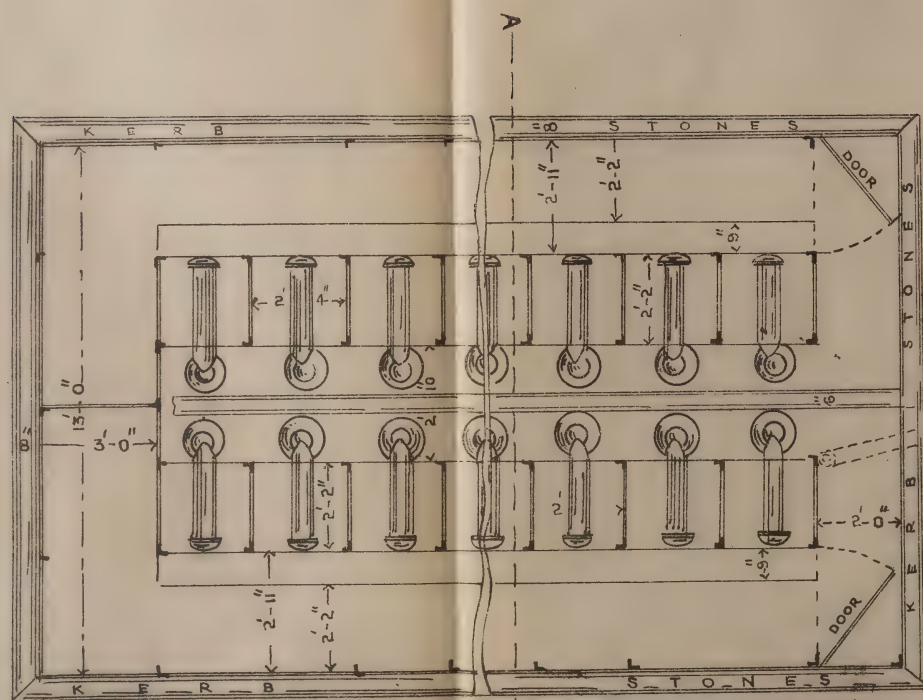
大日本書紀

大日本書紀

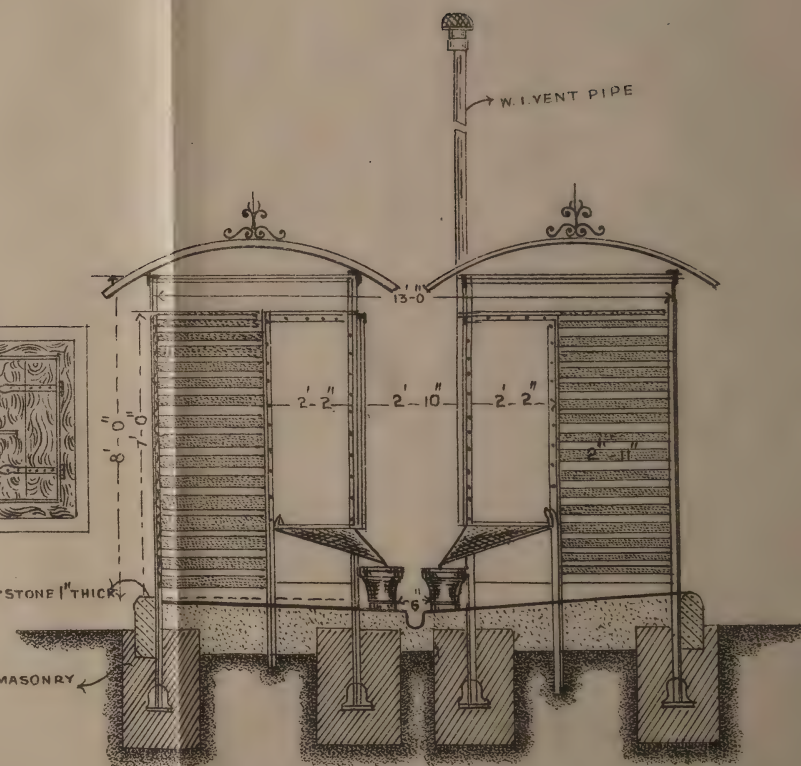


PLAN SHOWING DETAILS OF
CRAWFORD SYSTEM LATRINES

SCALE 4 FEET TO 1 INCH.



PLAN

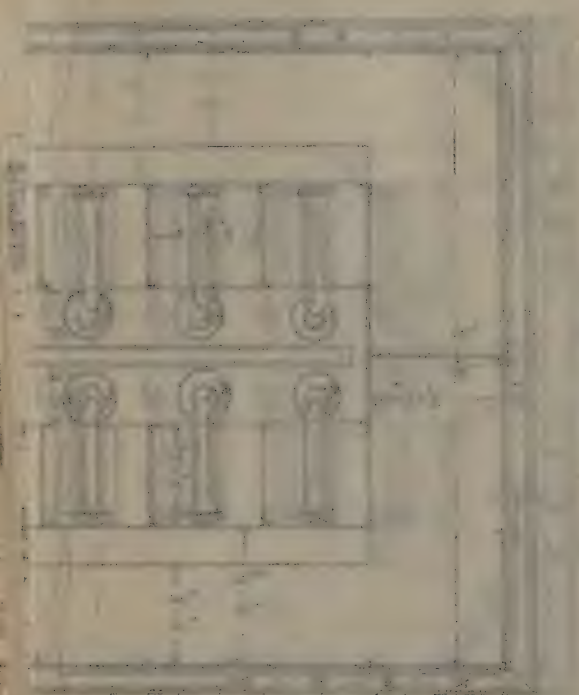


SECTION ON LINE A.B.

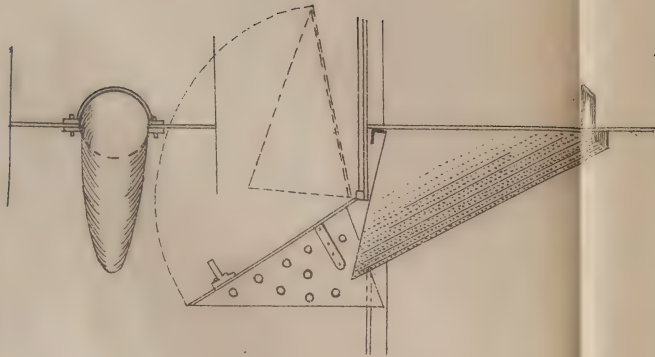
PLAN OF THE DETAIL OF

THE CHURCH OF THE BATHS

AND THE BATHS



PLAN

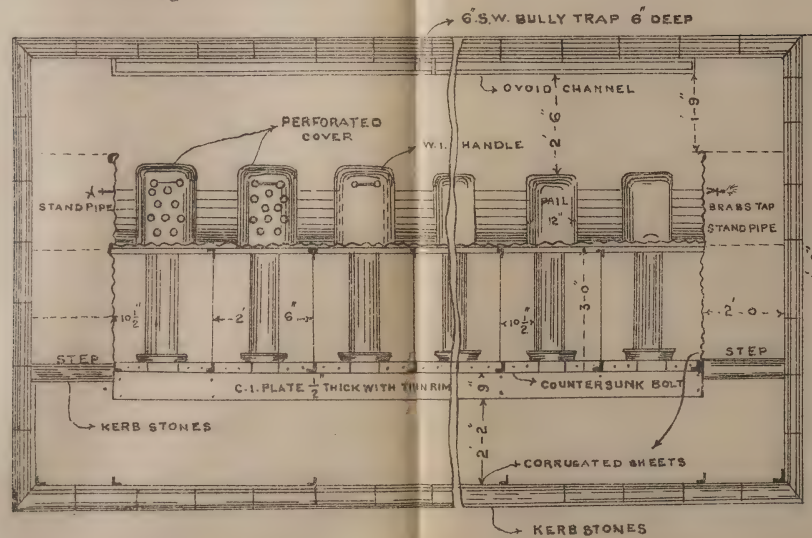


IMPROVED DRY SYSTEM LATRINES

SCALE 4 FEET TO 1 INCH

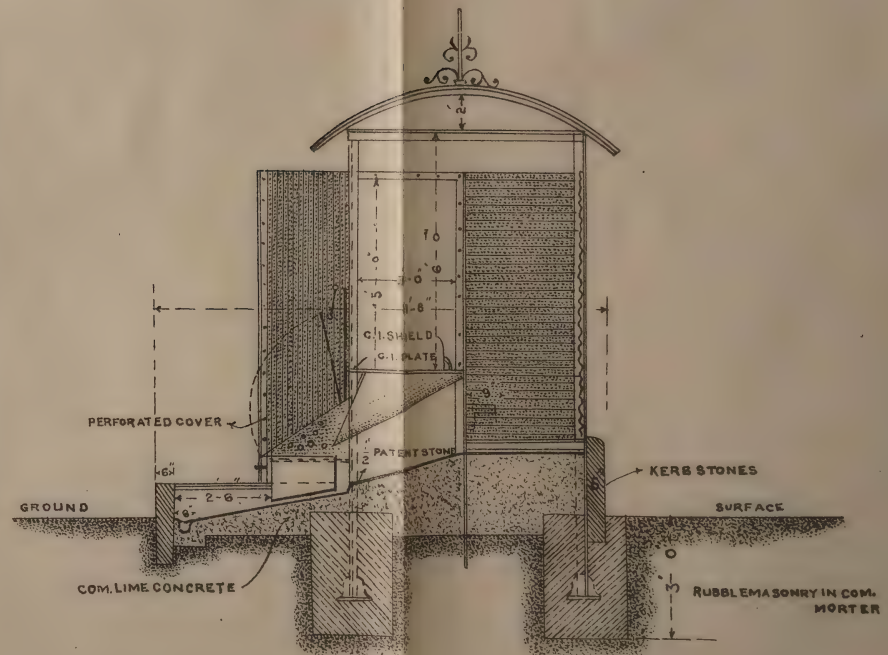
DETAILS OF C.I. PLATE, SHIELD, SHOOT & PERFORATED COVER

SCALE $\frac{1}{2}$ INCH TO 1 FOOT

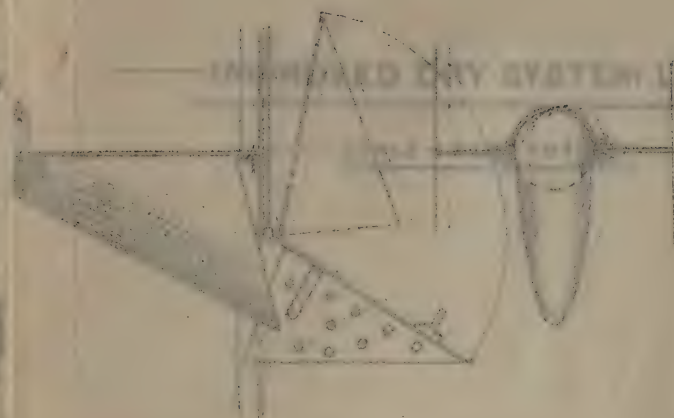


PLAN

CROSS SECTION

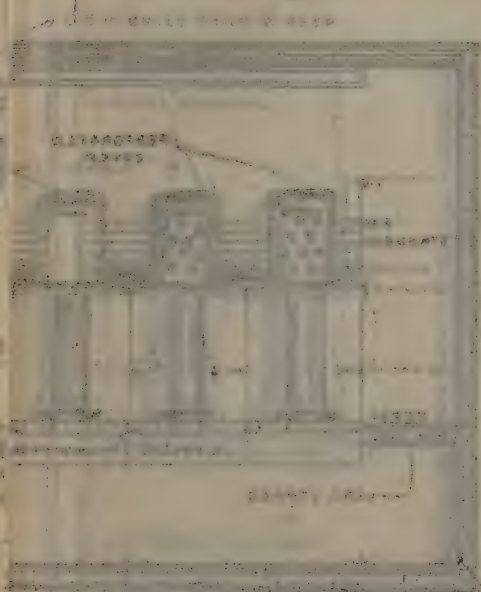


IMPROVED DRY SYSTEM LESTER



DETAILS OF CHIMNEY, BRICKS, AND OTHER MATERIALS

SCALE 1/2 INCH TO FOOT



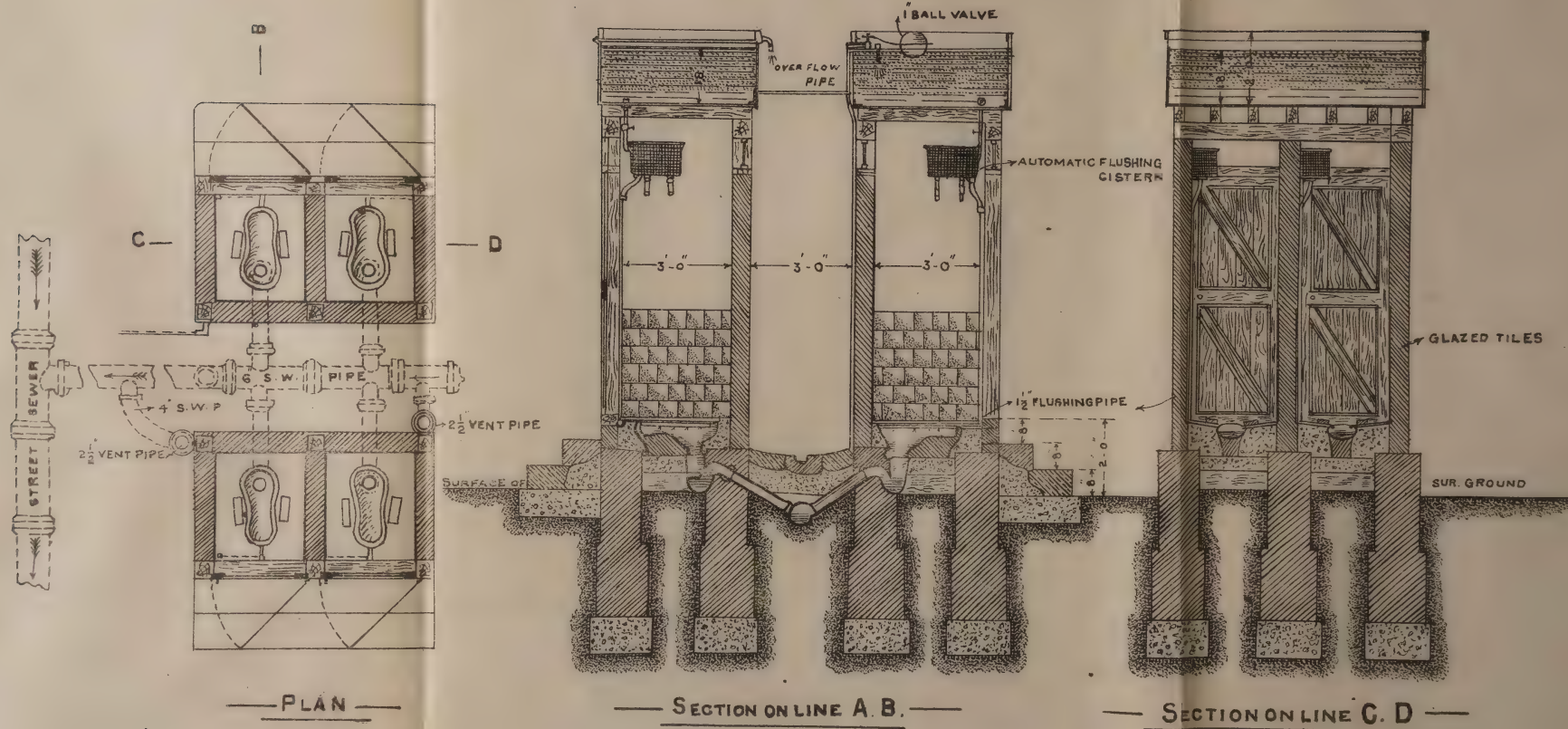
ALL RIGHTS RESERVED

— IMPROVED WATER CARRIAGE LATRINES —

PLATE 21

— FOR NATIVES —

— SCALE 4 FEET TO 1 INCH —



— PLAN —

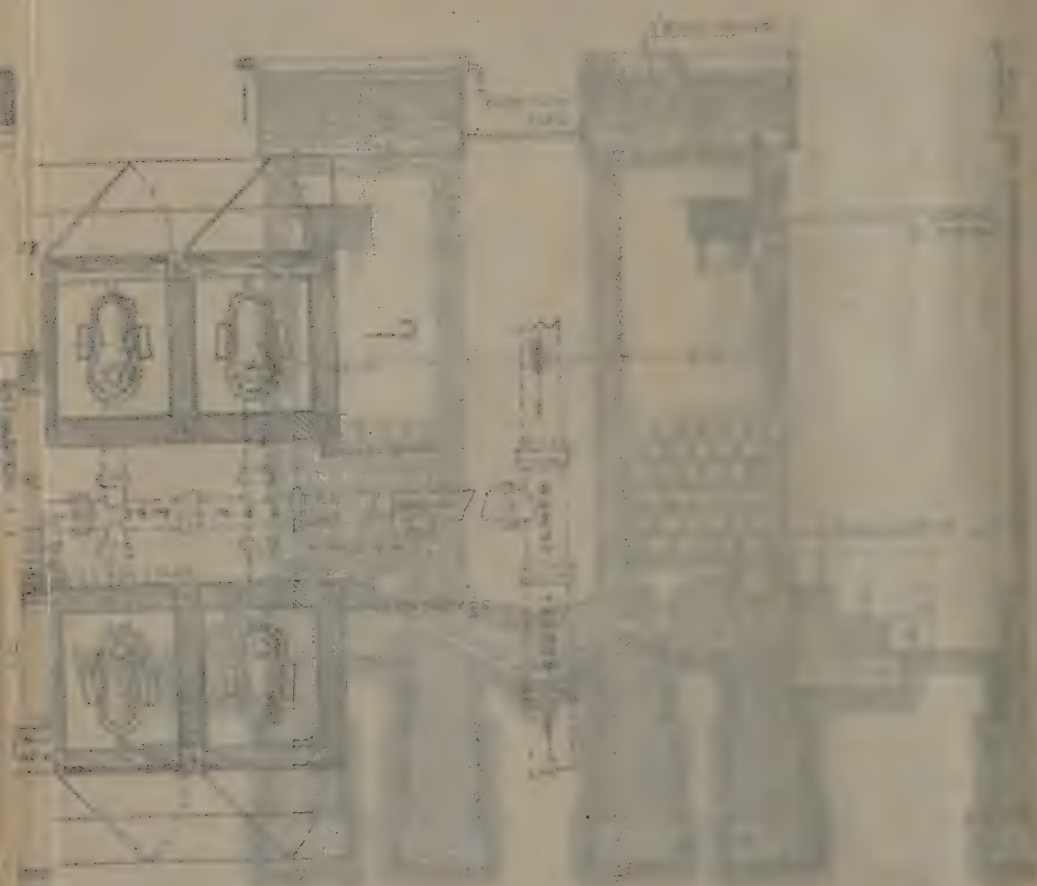
— SECTION ON LINE A. B. —

— SECTION ON LINE C. D. —

IMPROVED WATER CARRIAGE LATRINES —

— FOR NATIVES —

— SHOWING A FEW DETAILS —



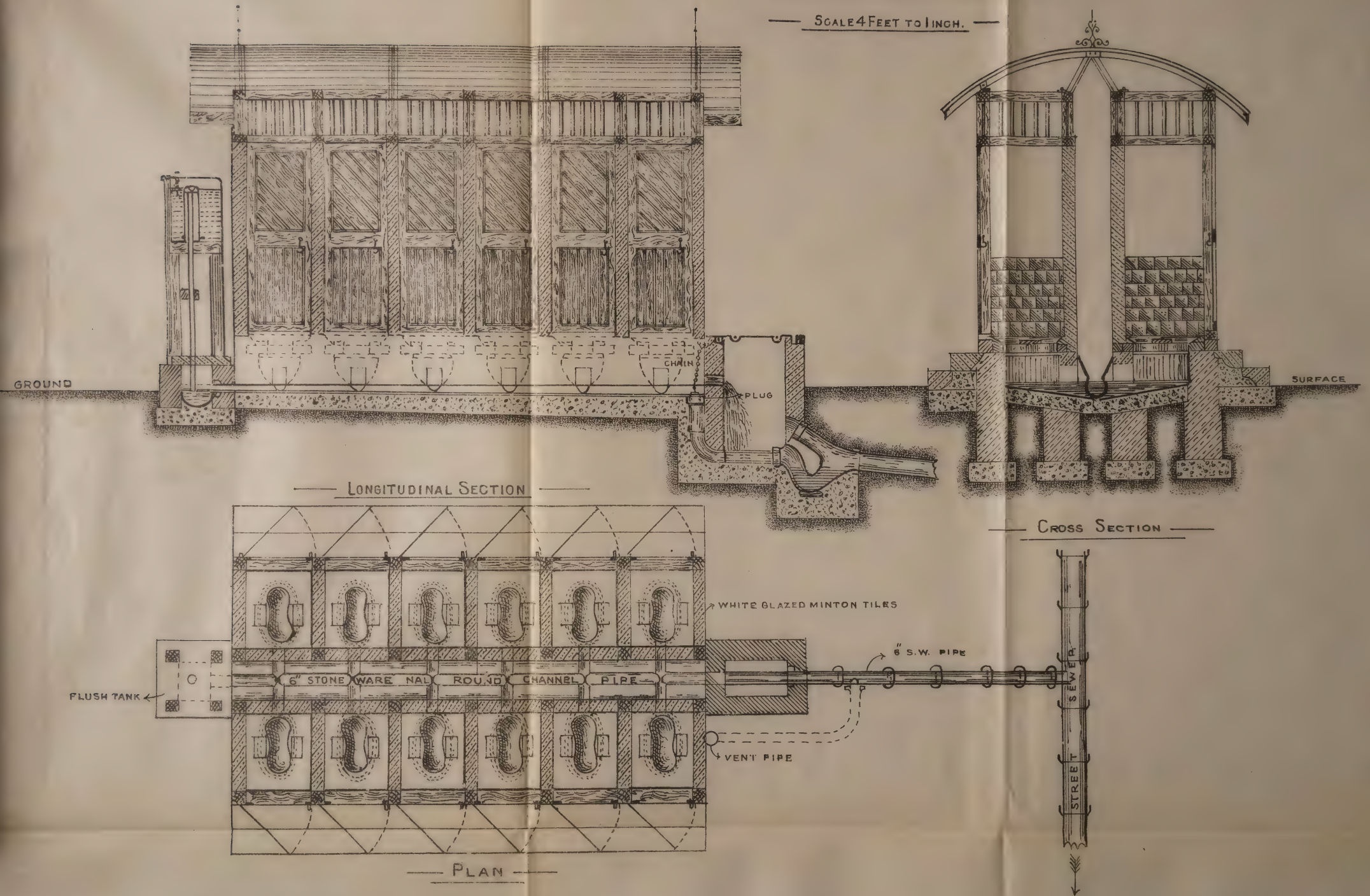
PLAN

SECTION OF LATRINE & C.

1

— TROUGH PATTERN LATRINES —

— SCALE 4 FEET TO 1 INCH. —

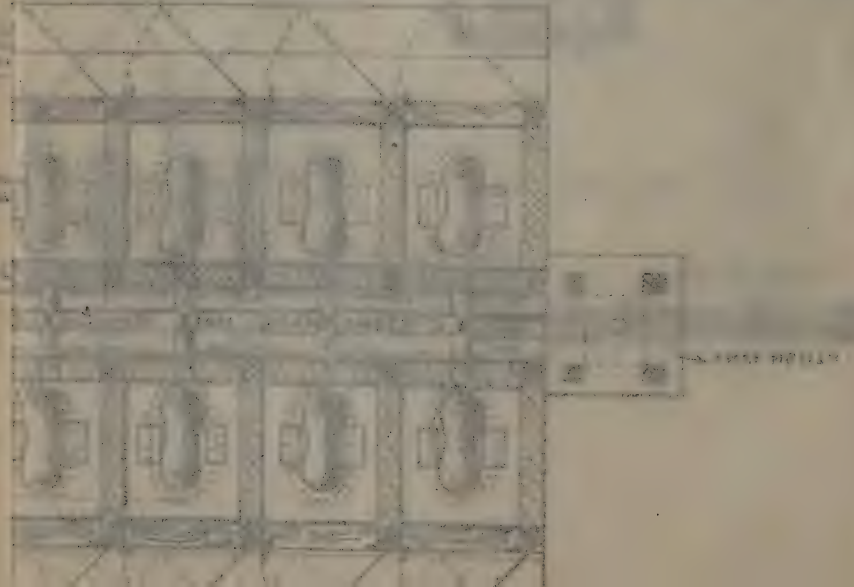


SECTION OF THE NEW LANTERN

— SCALE 4 FEET TO 1 INCH. —



SECTION OF THE NEW LANTERN



IMPROVED TROUGH PATTERN LATRINES.

PLATE 23.

SCALE 4 FEET TO 1 INCH.

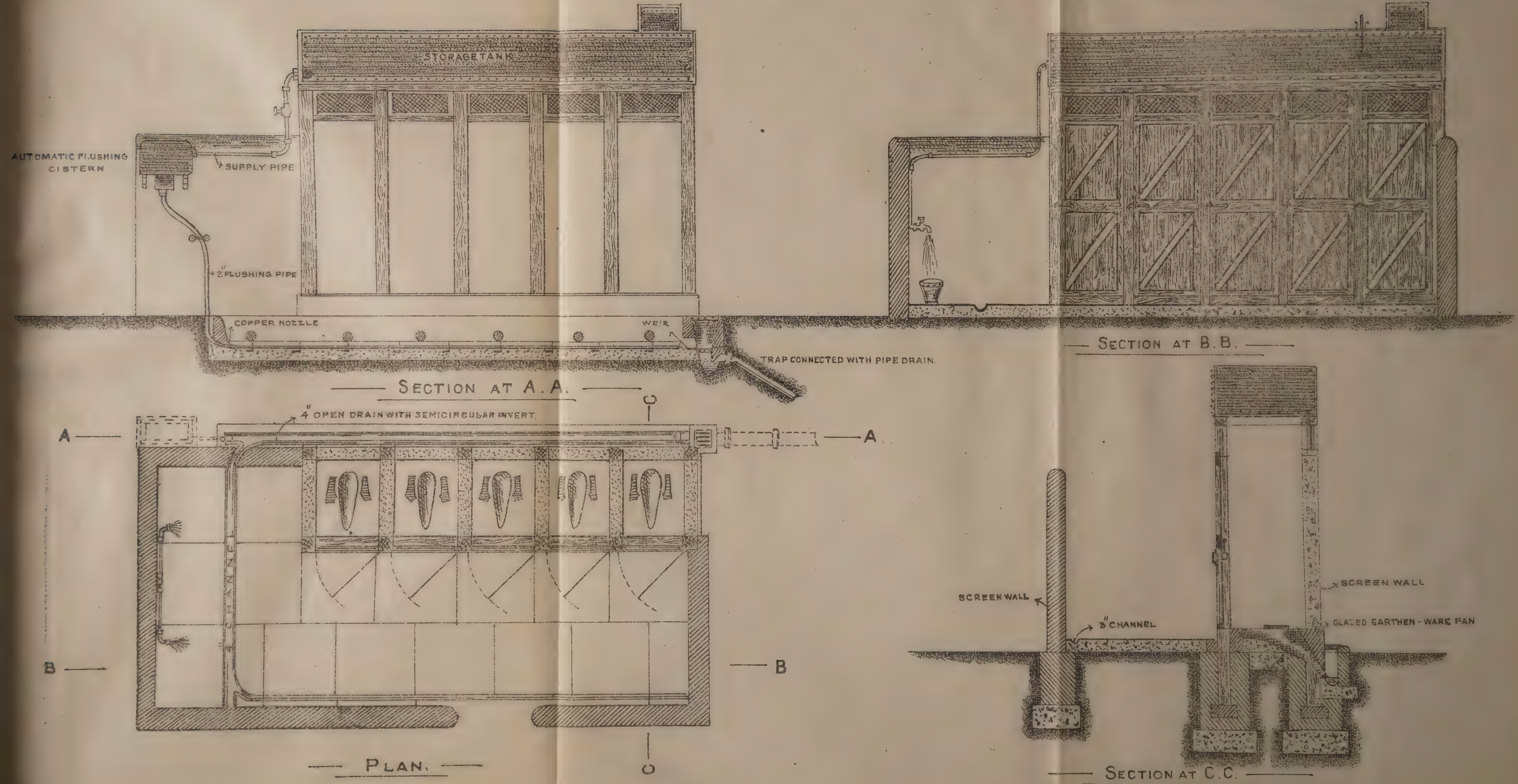
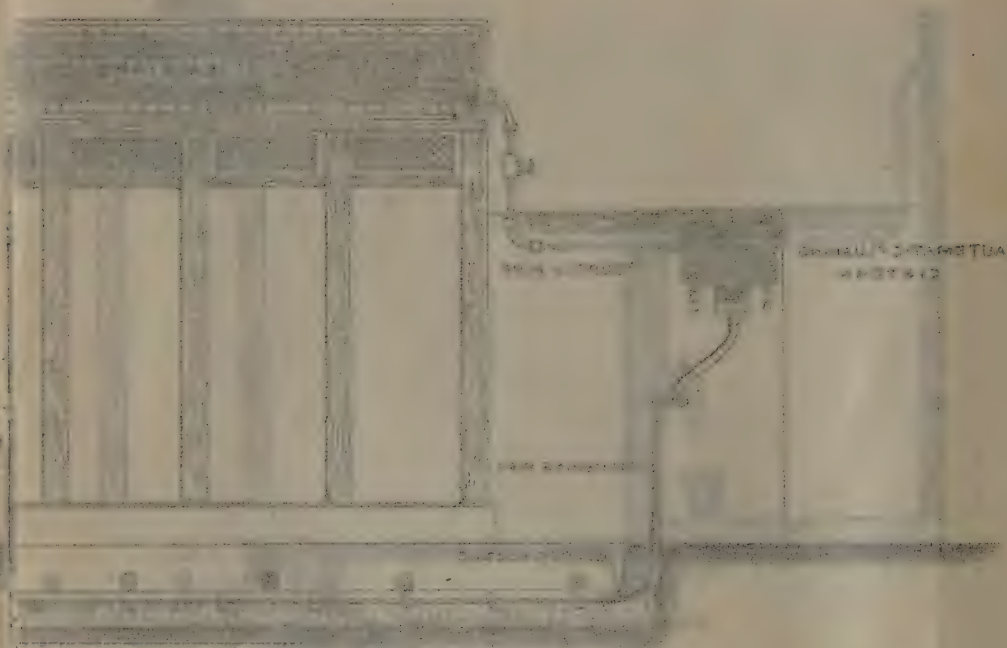
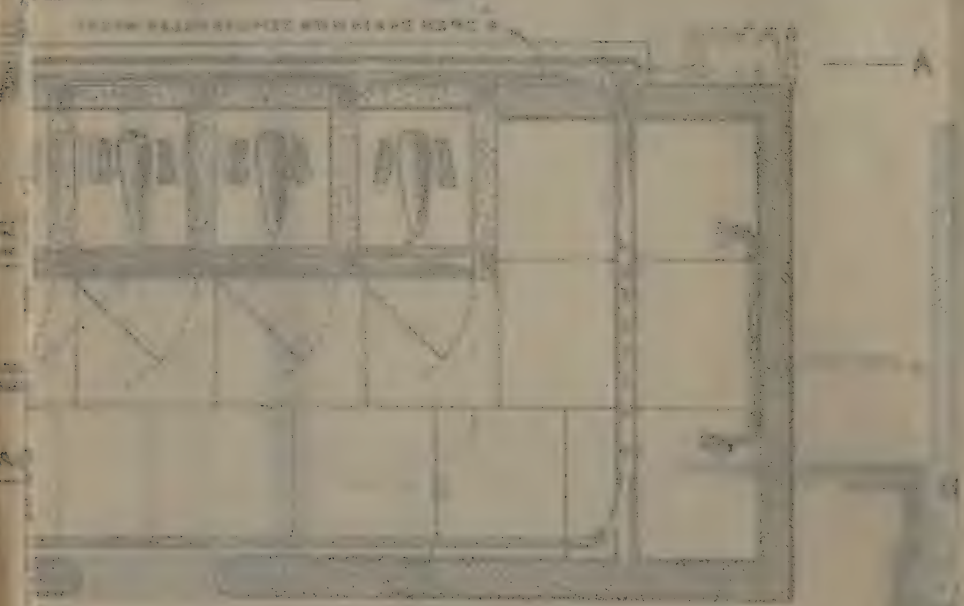


FIG. 1



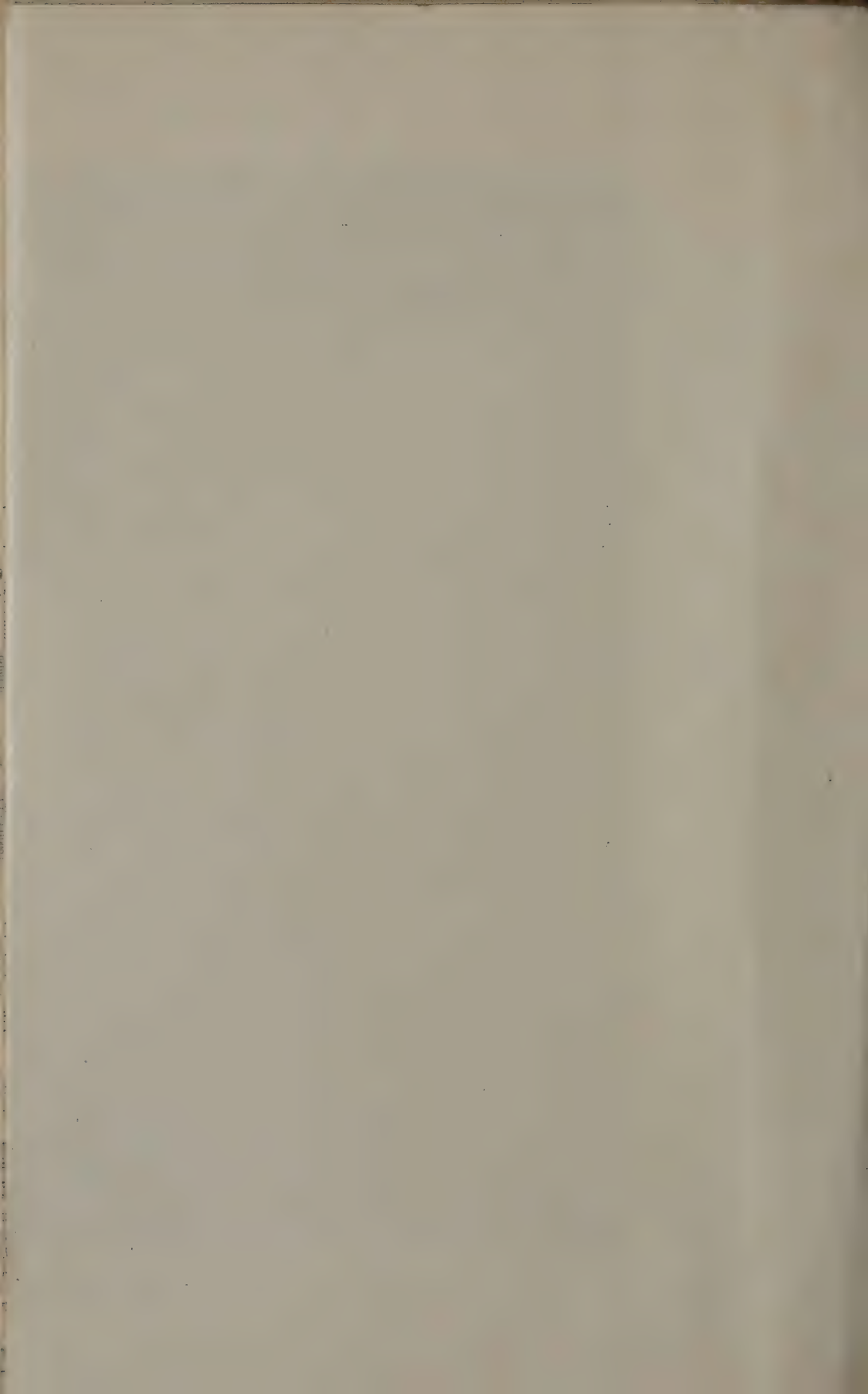
SECTION AT A-A



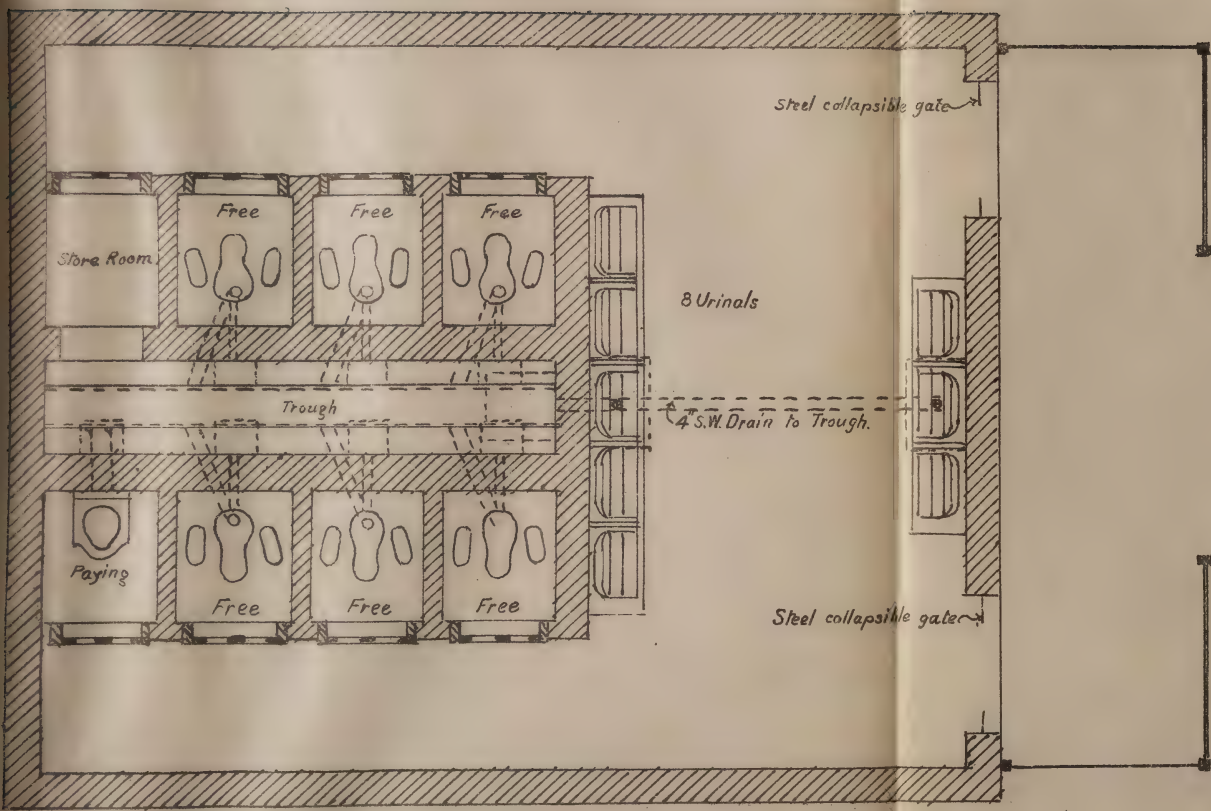
PLAN



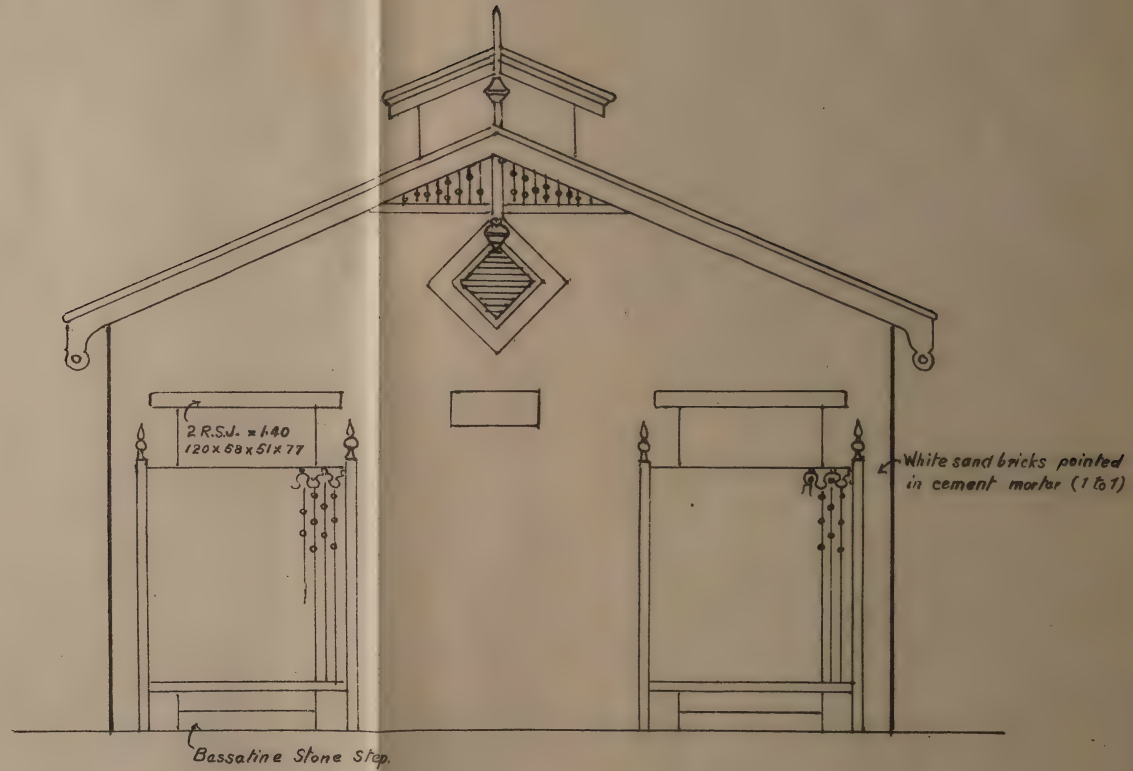
DELHI RANGE CLOSETS.



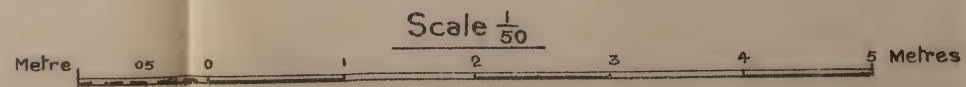
PUBLIC CONVENIENCES FOR MEN ONLY.



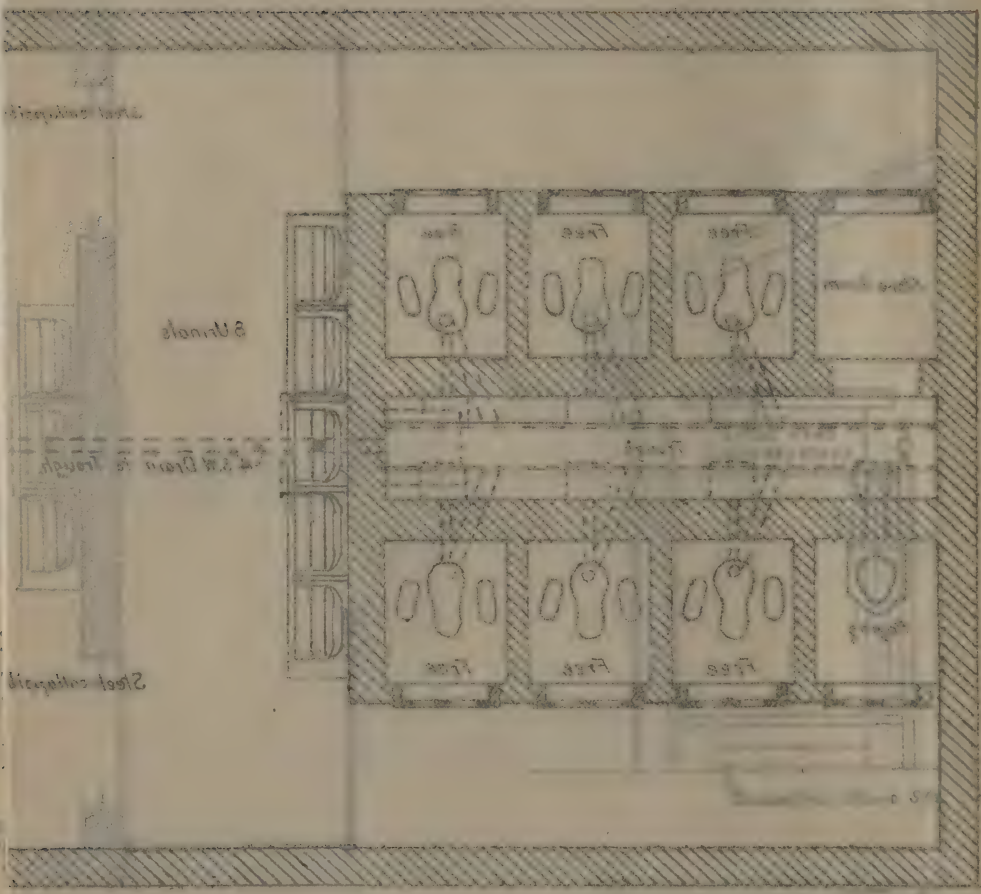
PLAN



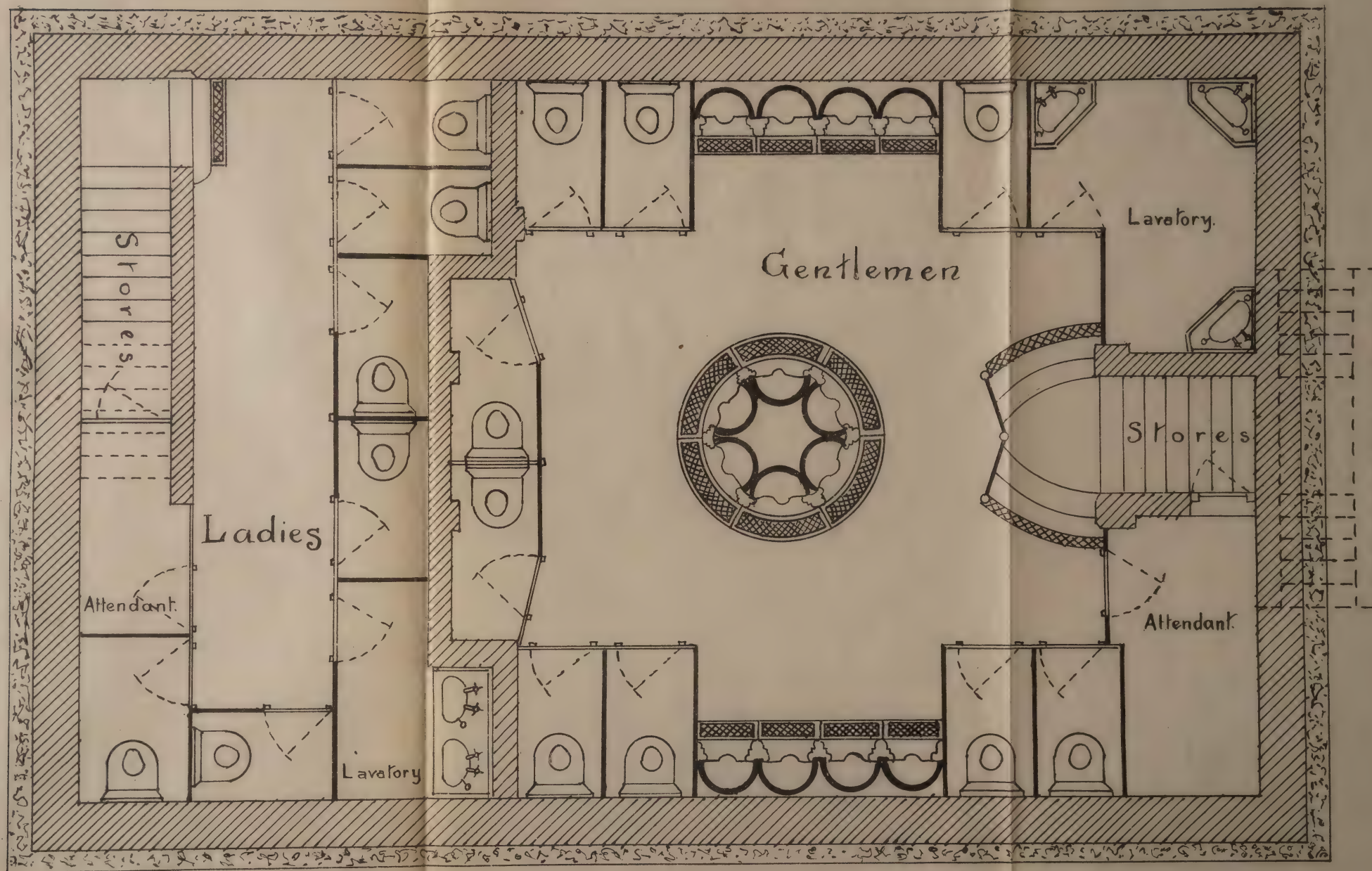
FRONT ELEVATION.



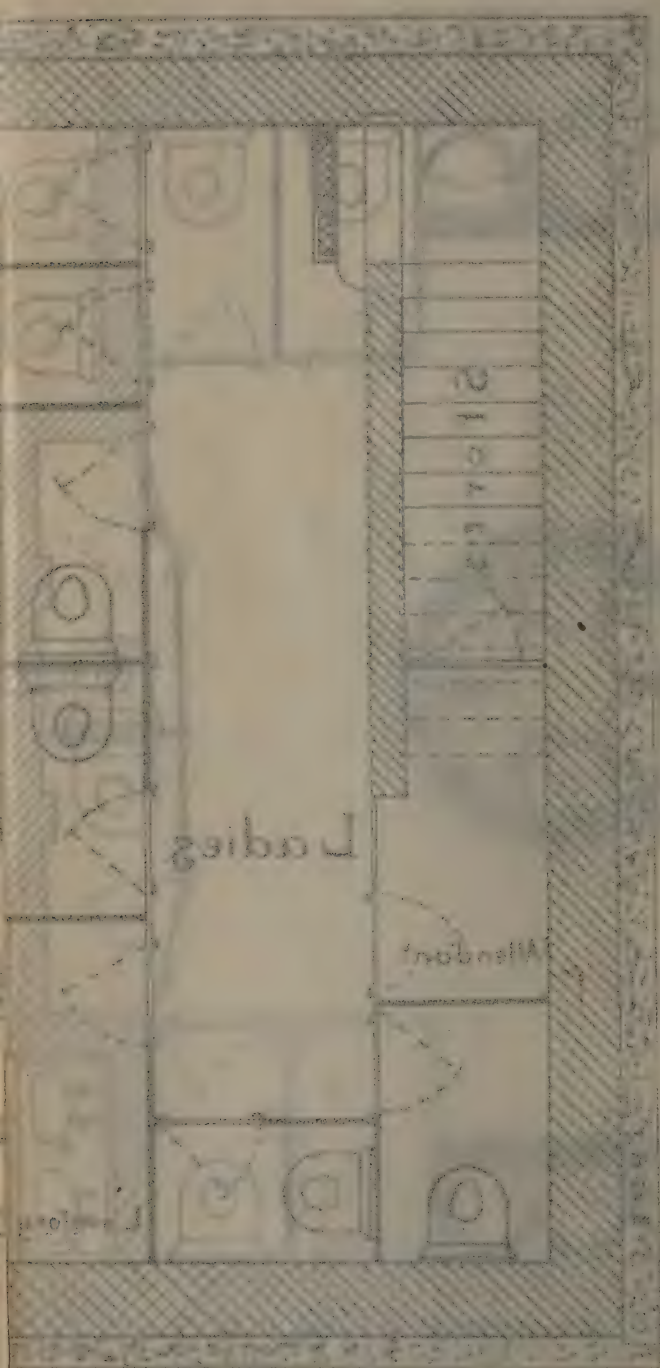
PLAN FOR SECOND FLOOR



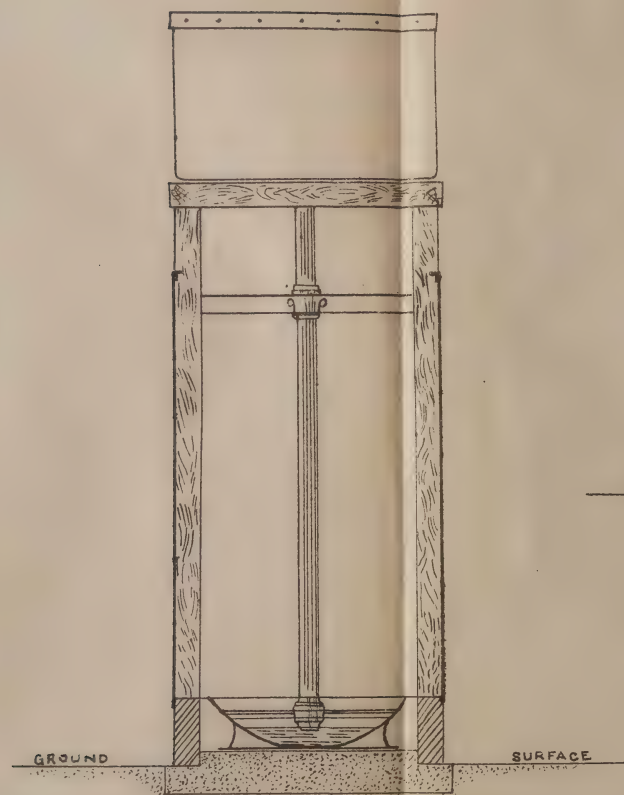
— PLAN —



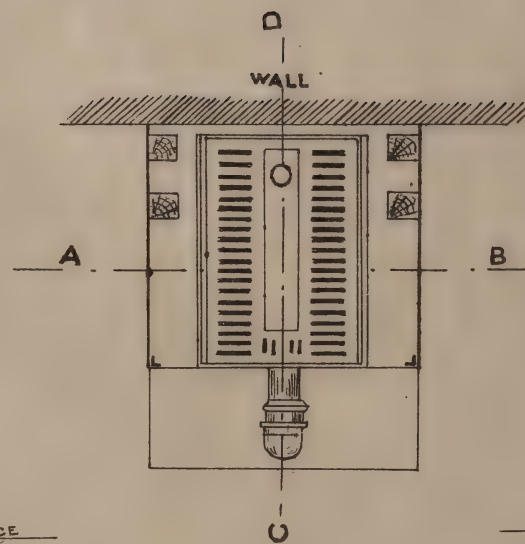
Underground Conv. Hall



URINAL WITH C.I. PAN

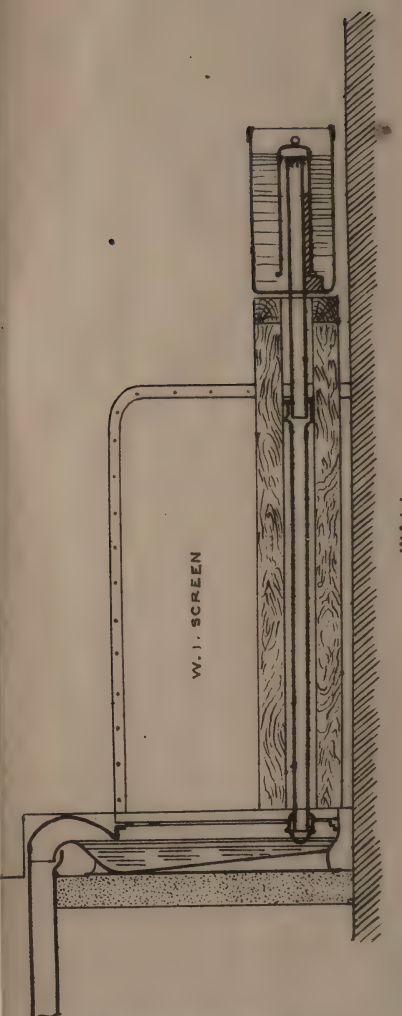


SECTION ON A B



PLAN

SCALE $\frac{1}{2}$ INCH TO ONE FOOT



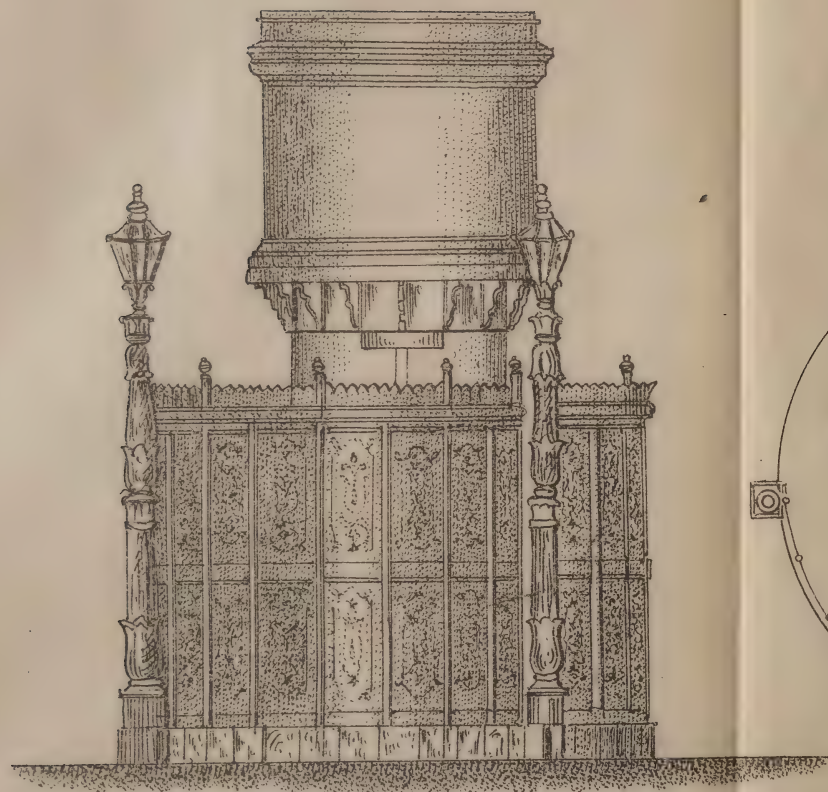
SECTION ON C D.

UPPER PART WITH 2 L. PAN

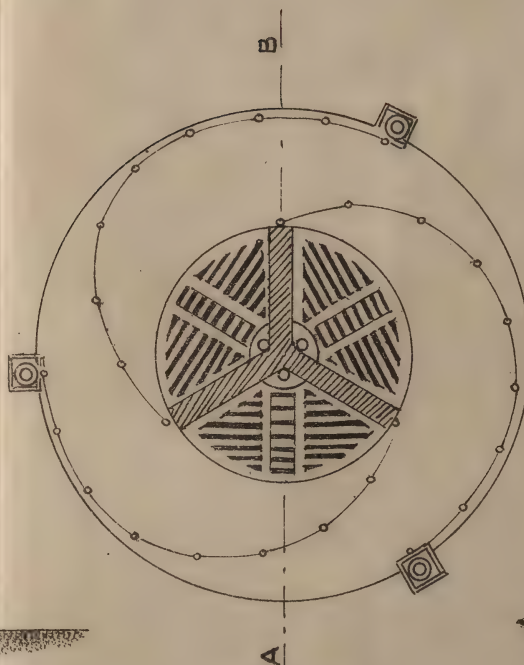


SECTION ON A

CIRCULAR URINAL

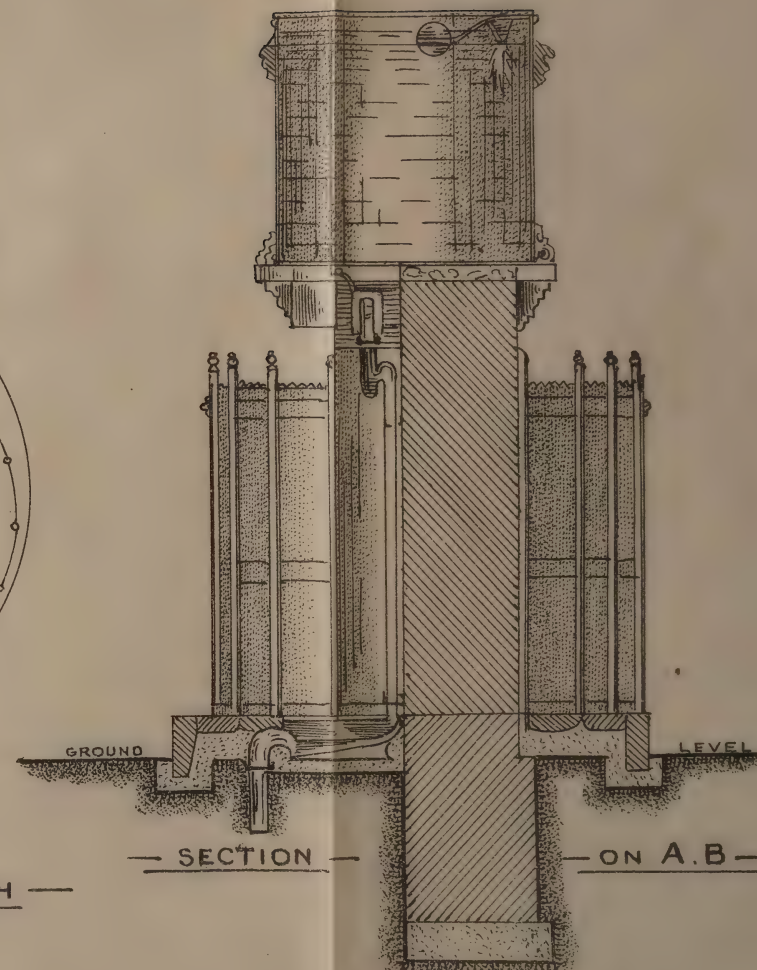


ELEVATION



PLAN

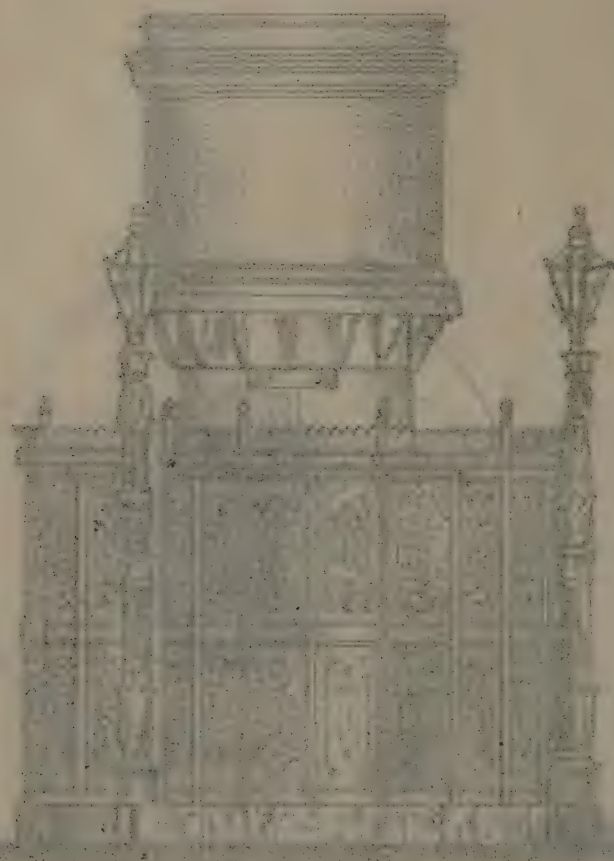
SCALE 3 FEET TO AN INCH



SECTION

ON A.B.

CIRCULAR ORNAMENT



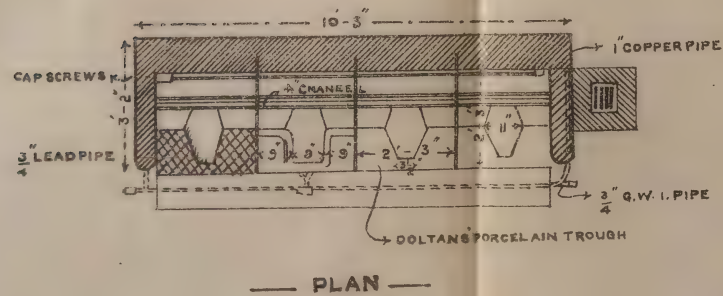
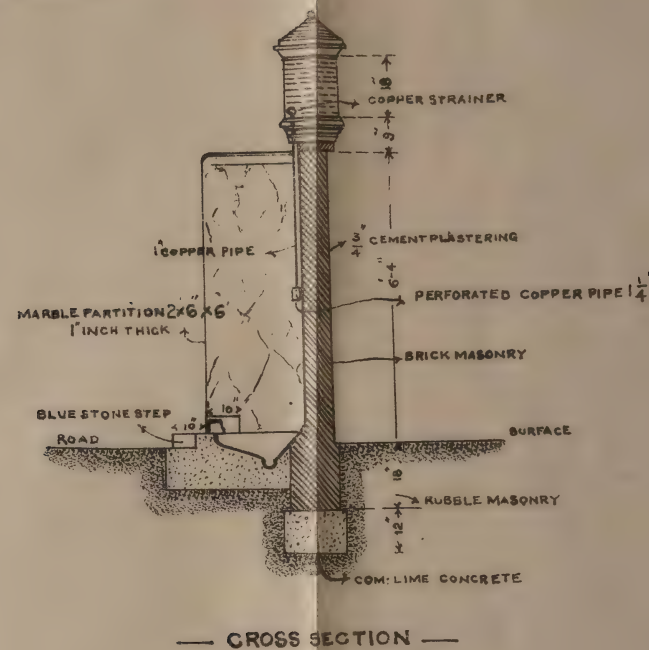
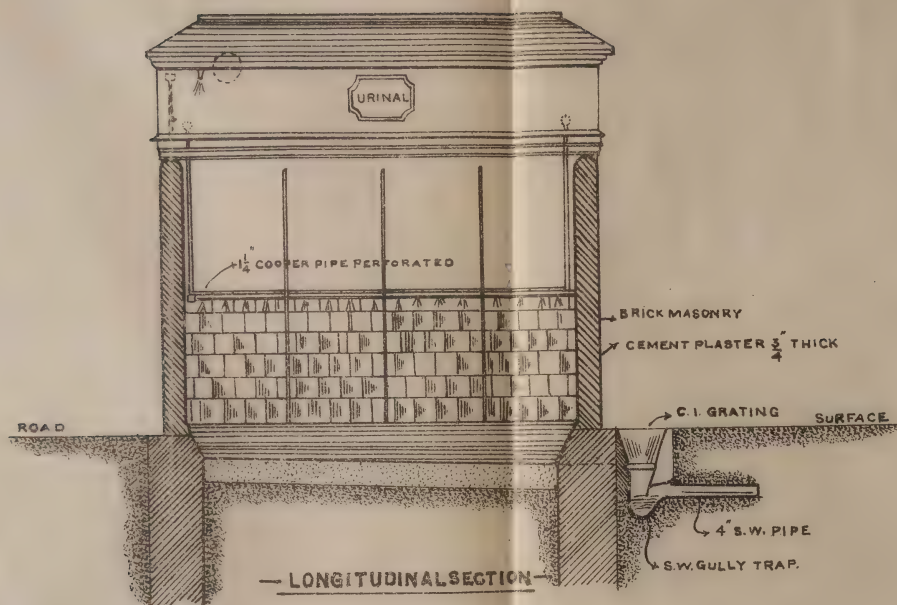
ELEVATION

SECTION

DETAILS OF COMBINED CONSTANT FLUSHING URINAL

PLATE 29.

SCALE 4 FEET TO 1 INCH

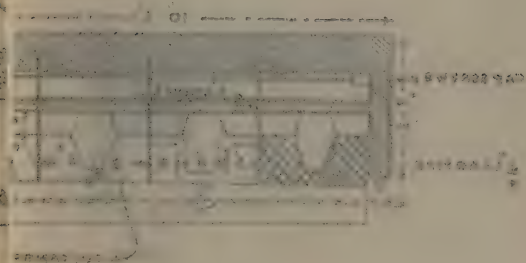


DEPARTMENT OF THE ARMY - CONSTANT - UNIFORM

SCALE 1/4" = 1 FOOT TO 11"



— FRONT —

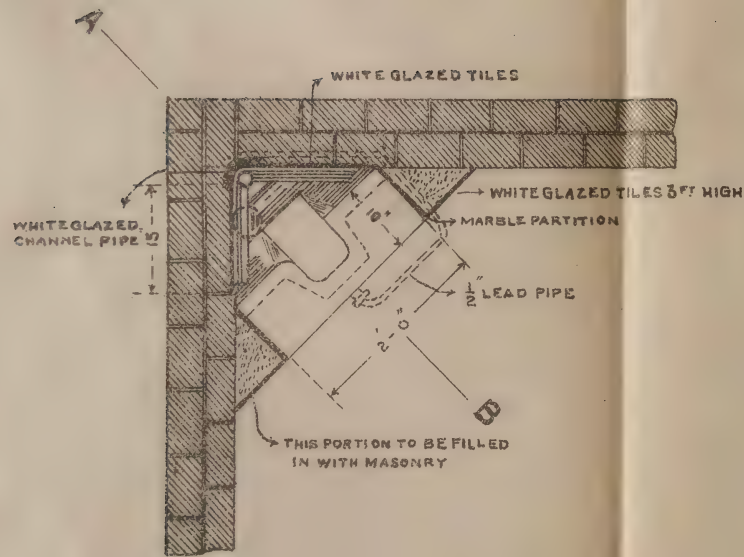


— PLAN —

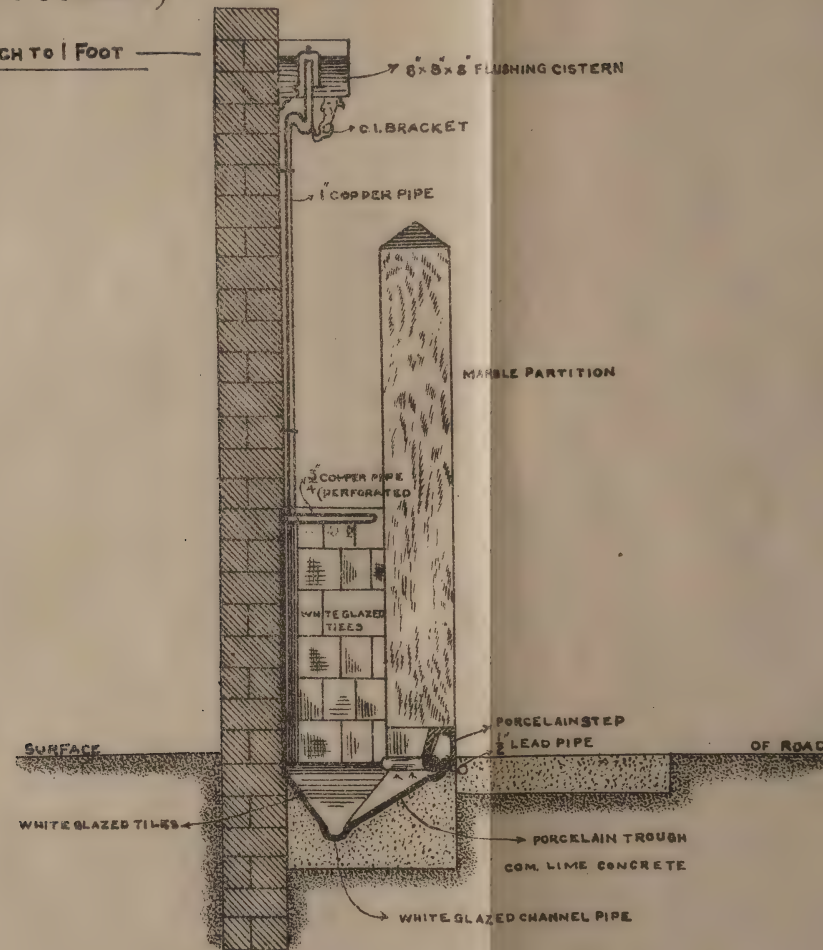
COMBINED CONSTANT FLUSHING URINAL

(PLACED IN A CORNER)

SCALE $\frac{1}{8}$ INCH TO 1 FOOT



PLAN



VERTICAL SECTION ON LINE A B

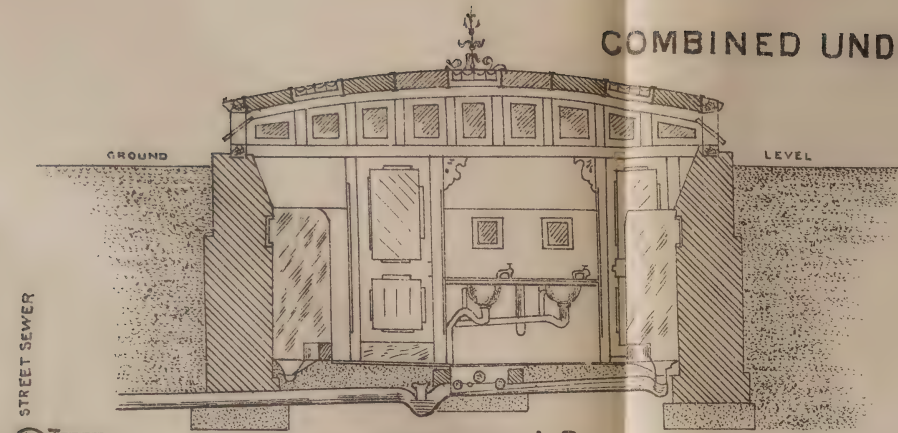
WHITE GLAZED TILES



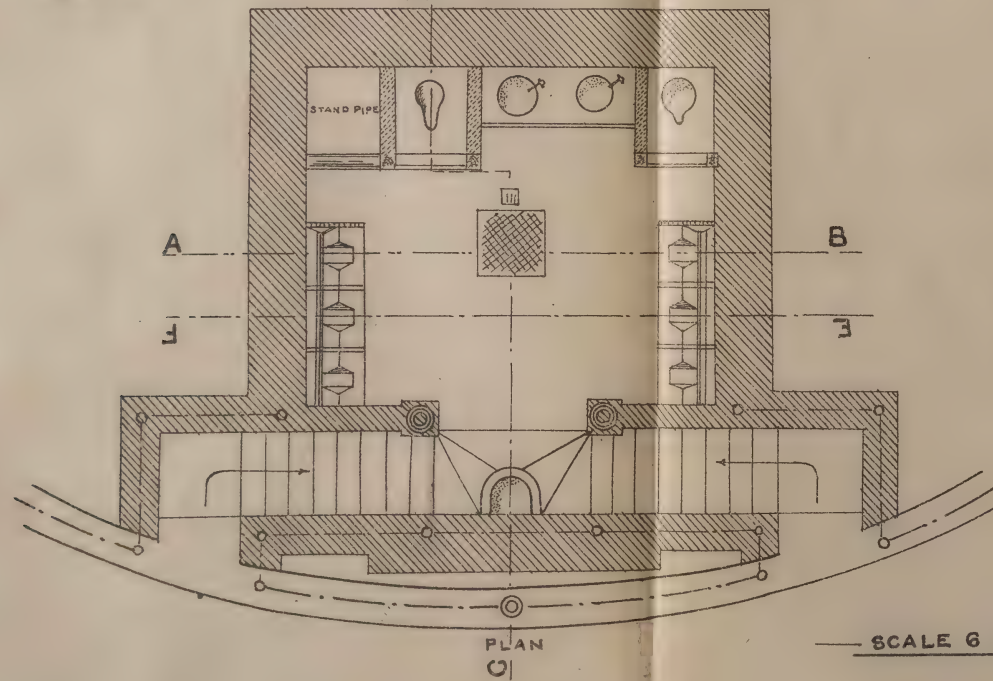
THE PORTION TO BE FILLED
IN WITH MASONRY

PLAN

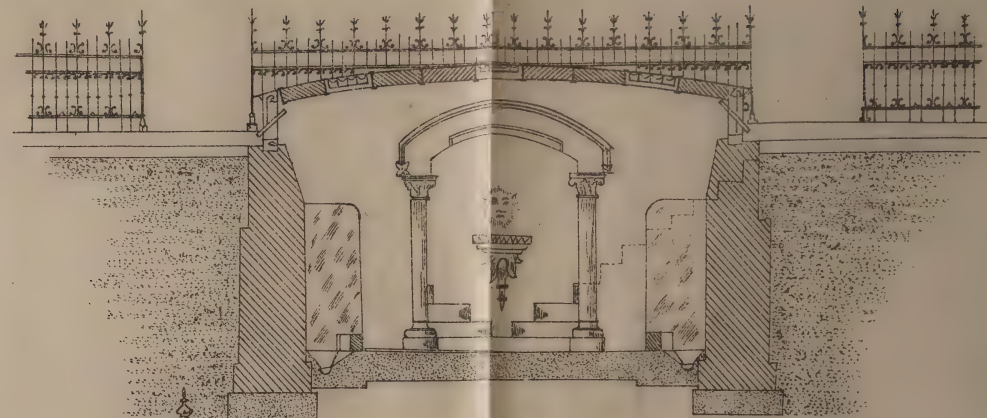
COMBINED UNDERGROUND PUBLIC CONVENIENCES



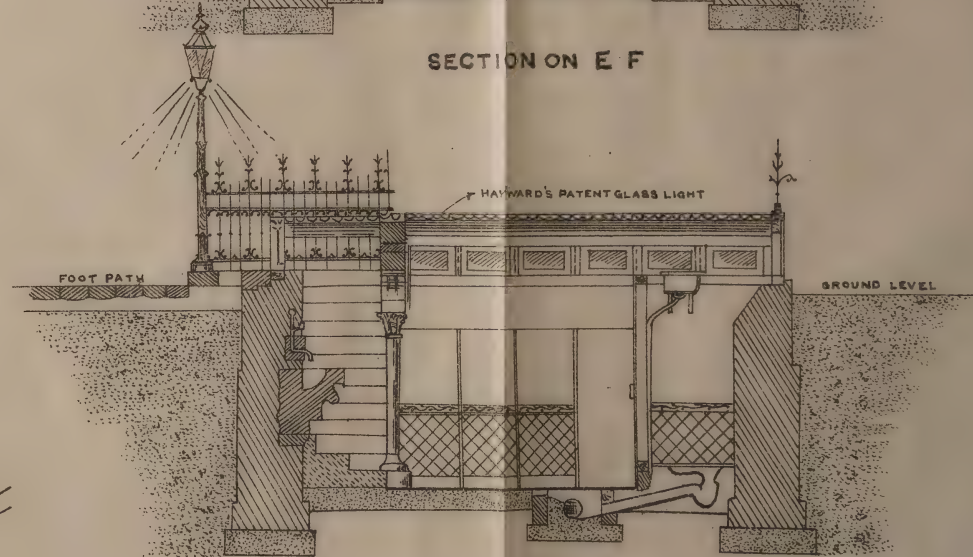
SECTION ON A B



PLAN C



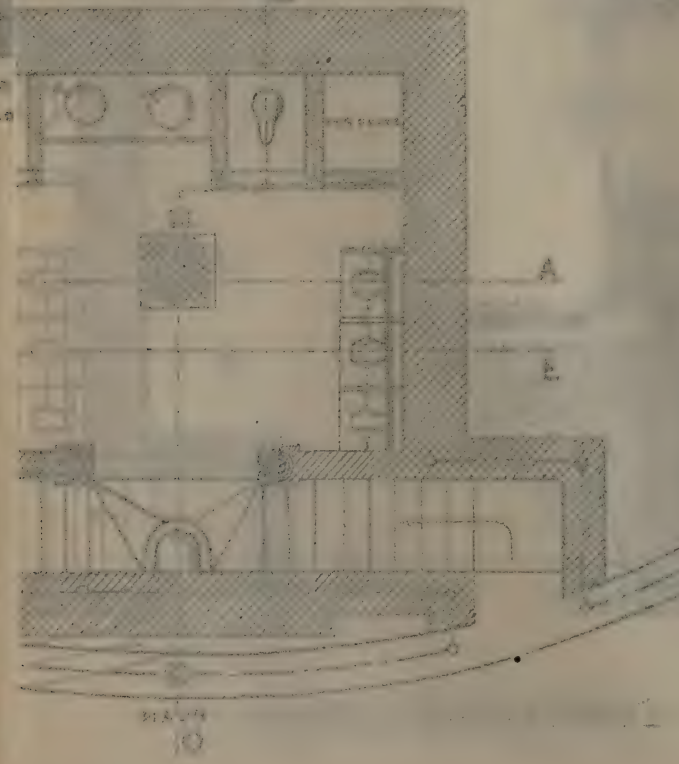
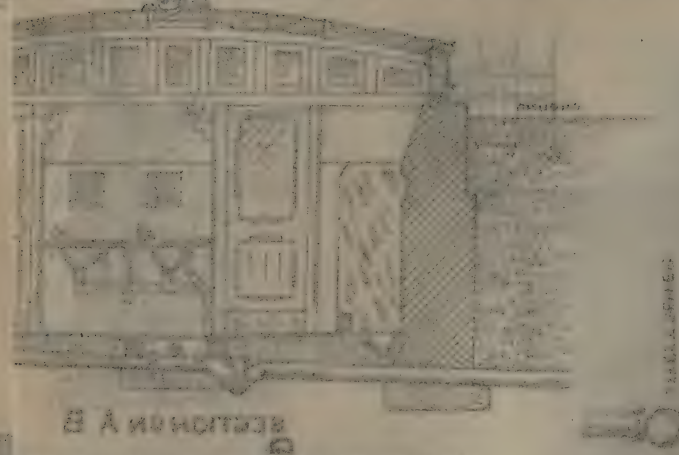
SECTION ON E F



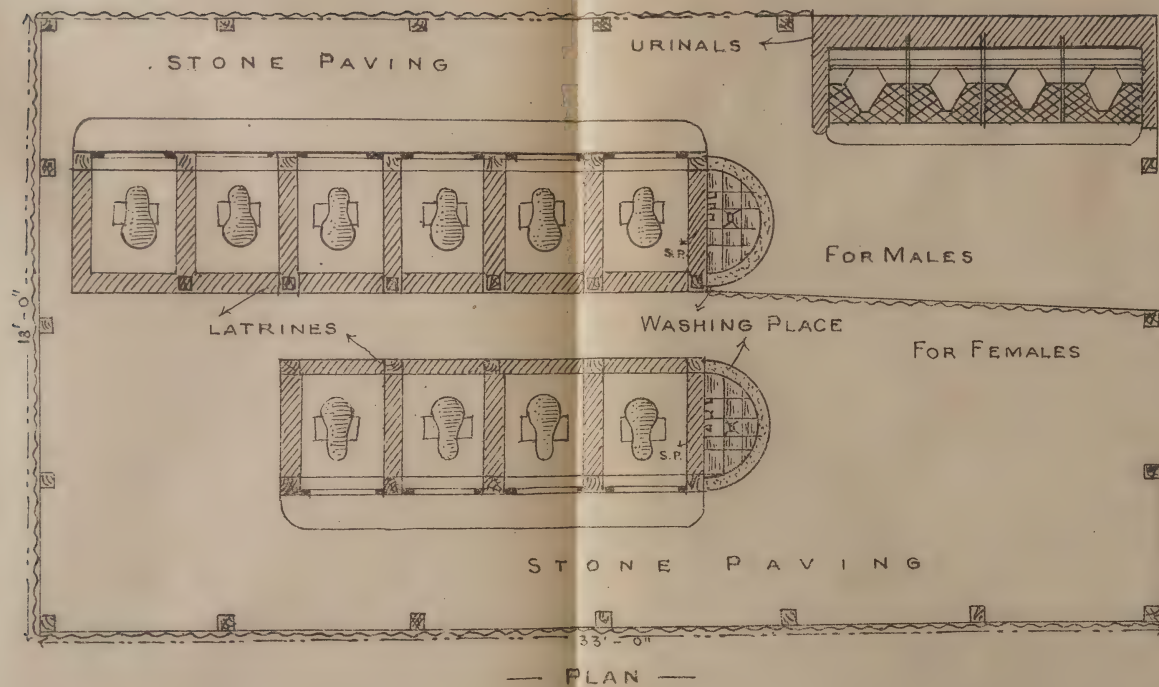
SECTION ON C D

SCALE 6 FEET TO AN INCH

COMBINED UNDERGROUND RAILWAY STATION

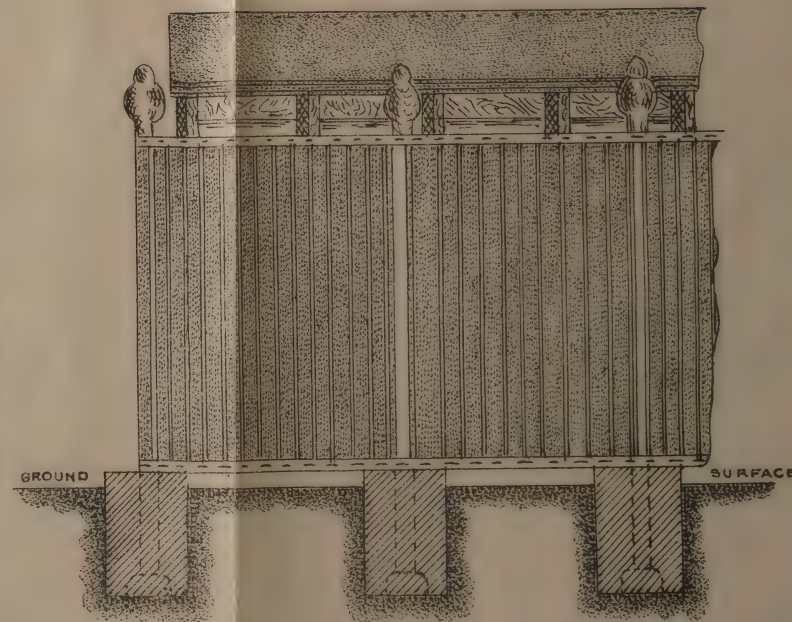


A COMPLETE INSTALLATION OF PUBLIC CONVENIENCES



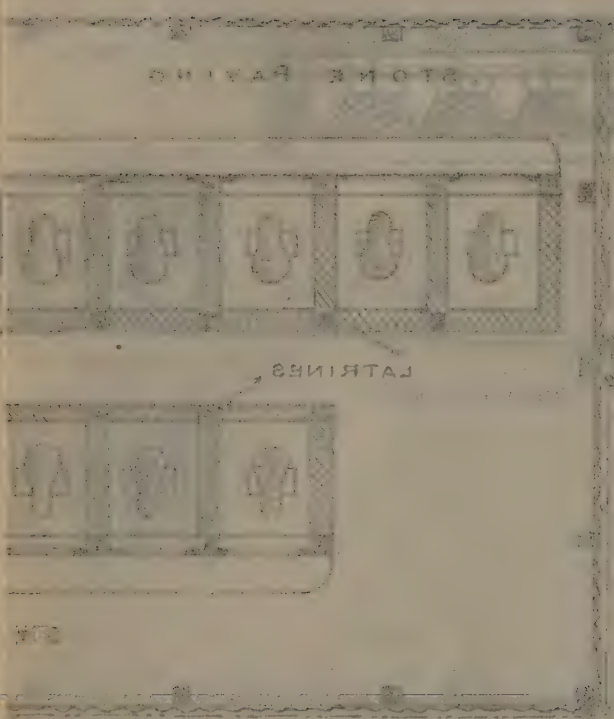
SCALE OF 5 FEET TO AN INCH

SIDE ELEVATION

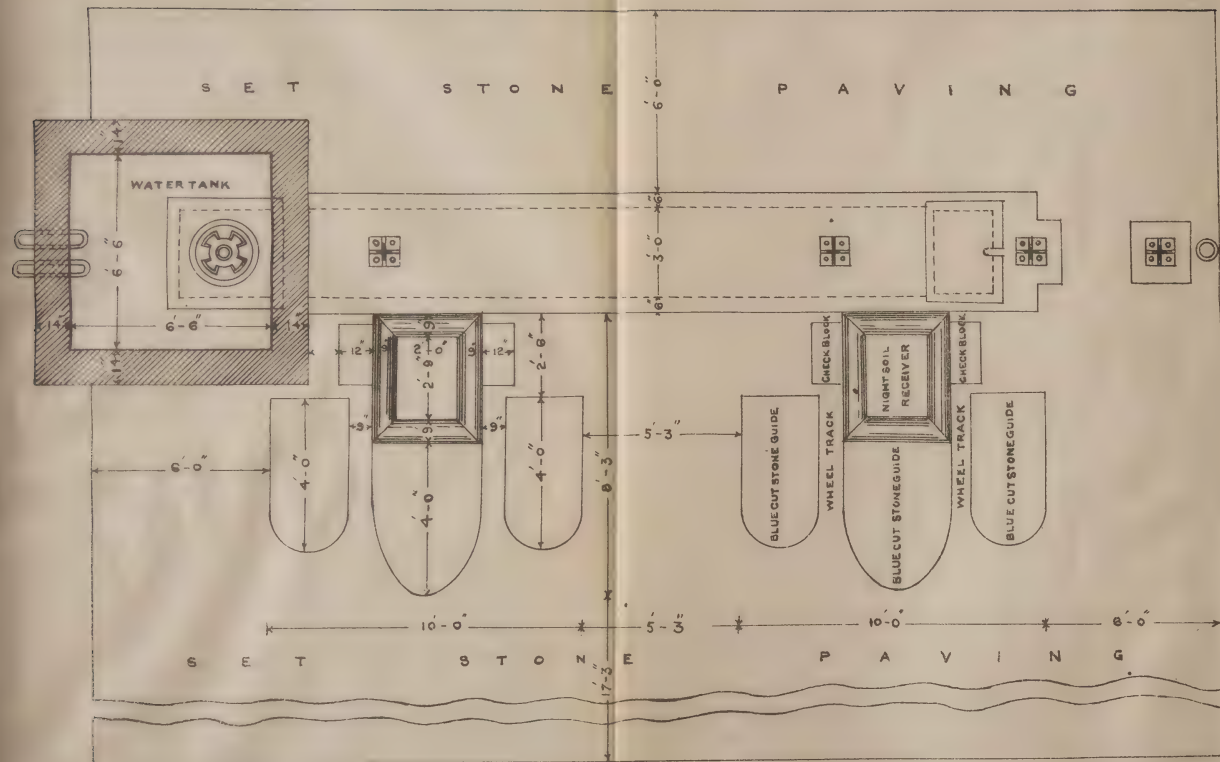


SCALE OF 4 FEET TO AN INCH

— A COMPLETE PLAN OF PUBLIC CONVENIENCE —



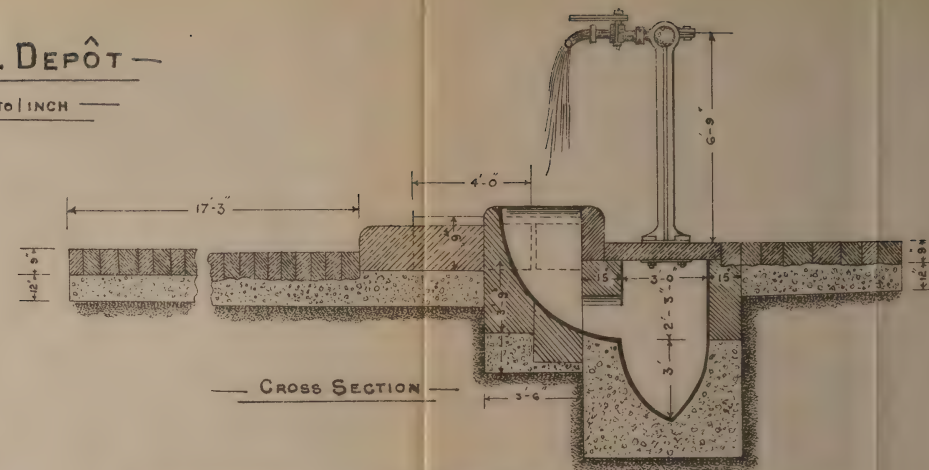
— PLAN OF BUILDING —



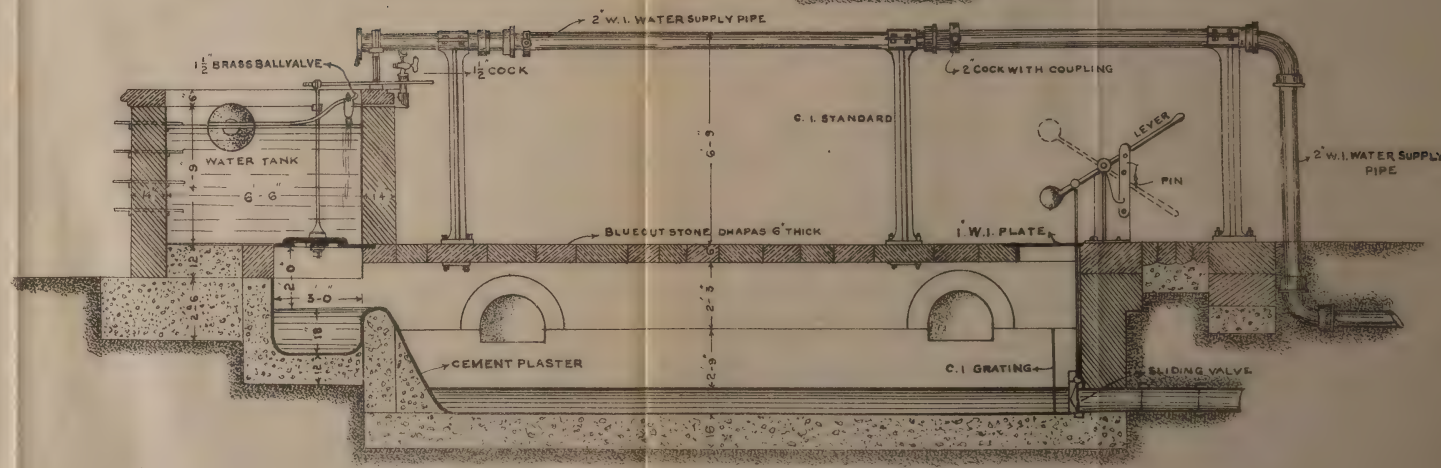
— PLAN —

NIGHT SOIL DEPÔT

SCALE 4 FEET TO 1 INCH



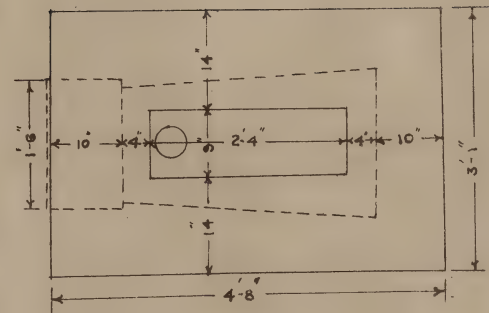
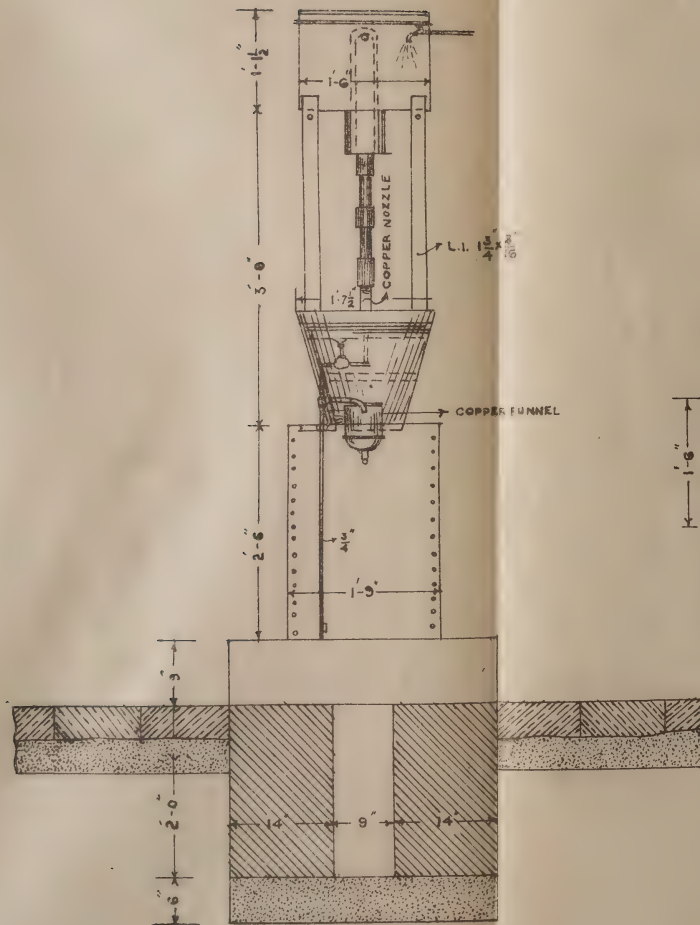
— CROSS SECTION —



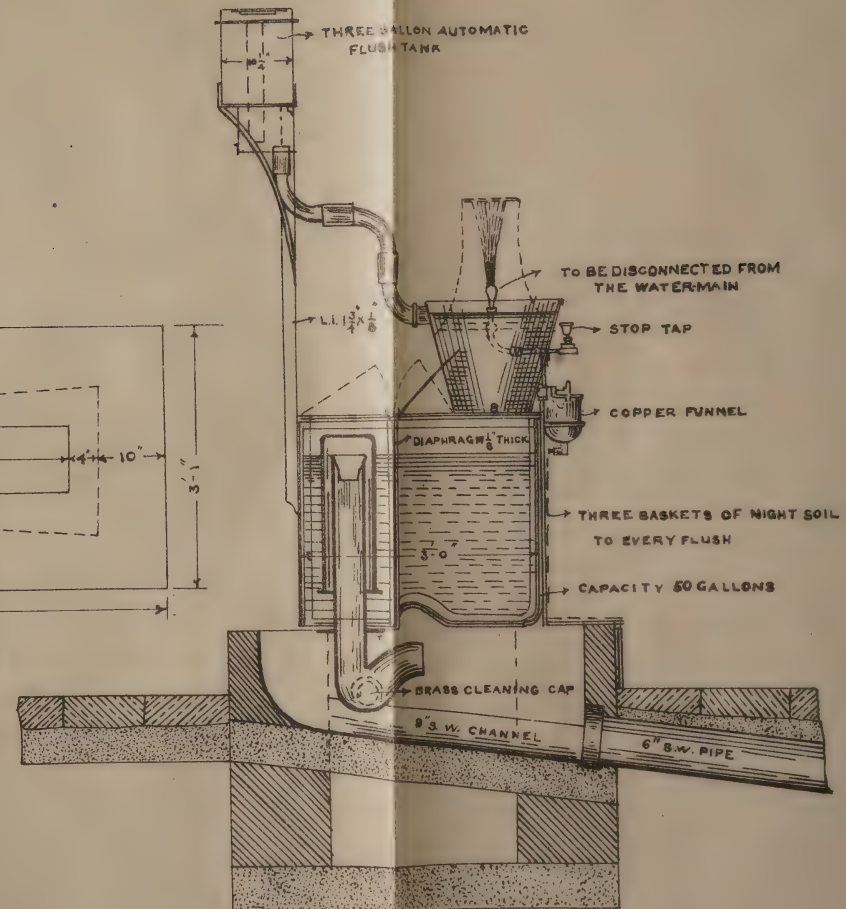
— LONGITUDINAL SECTION —

— EXCRETA DISPOSER —

— SCALE 2 FEET TO AN INCH —

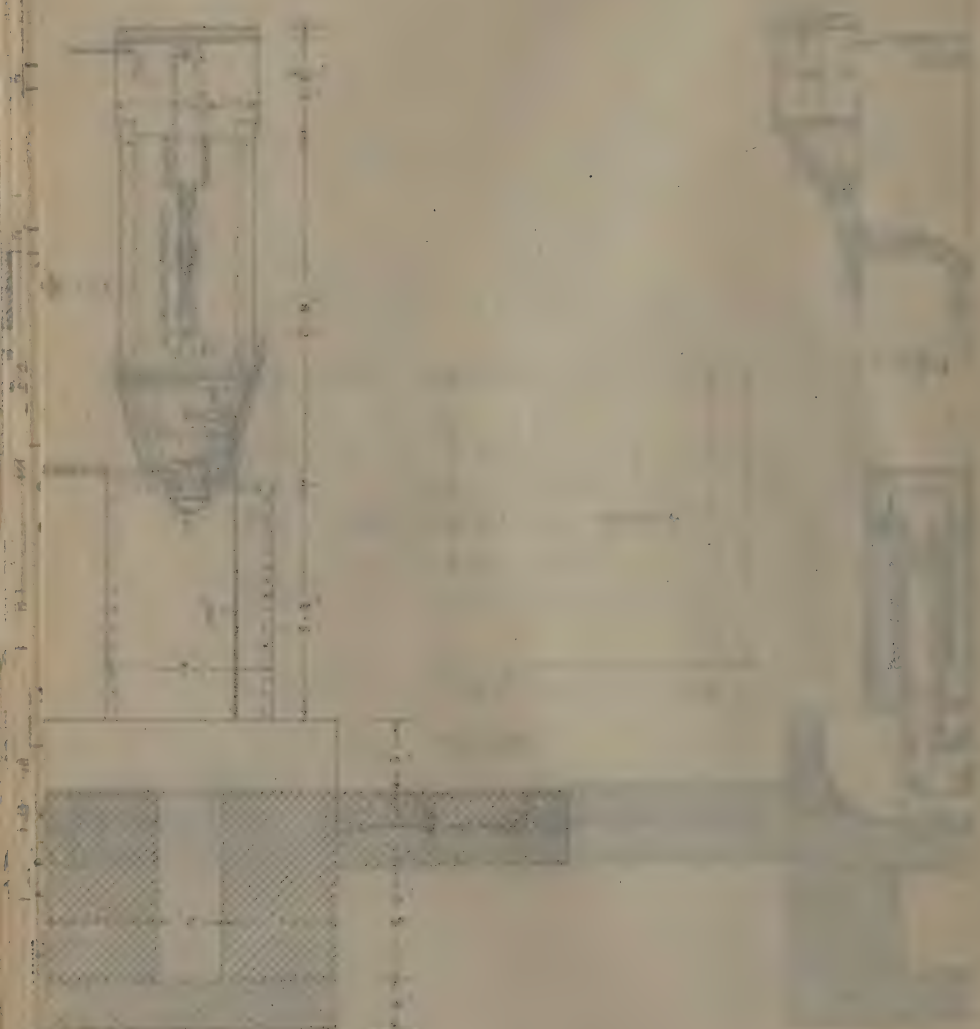


PLAN

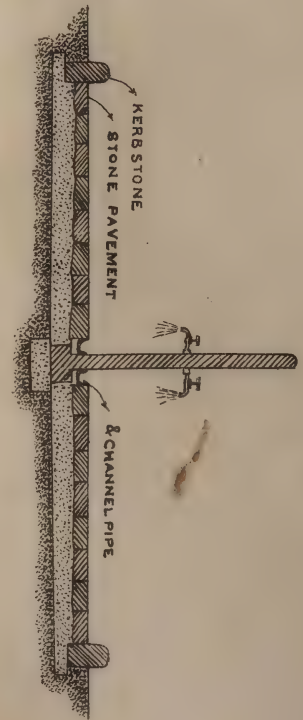
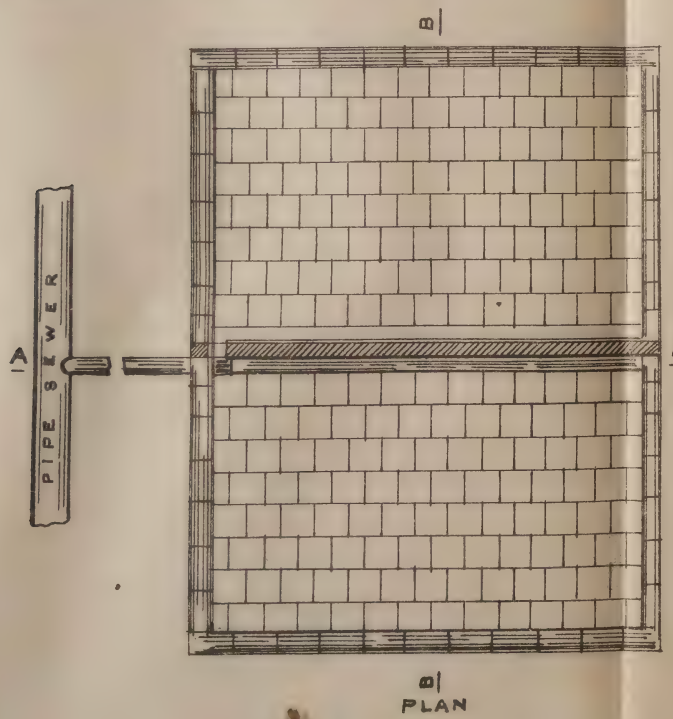
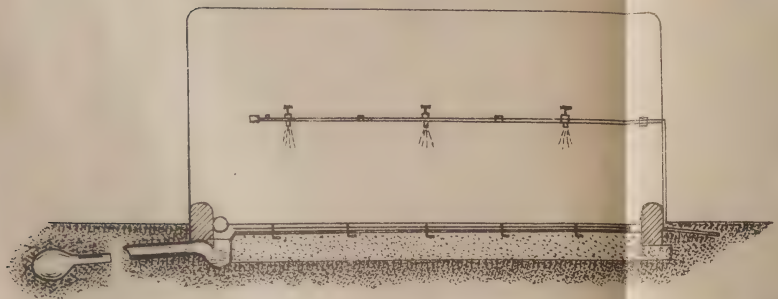


— EXHIBIT DRAWING —

— SCALE 1/4" = 1' —

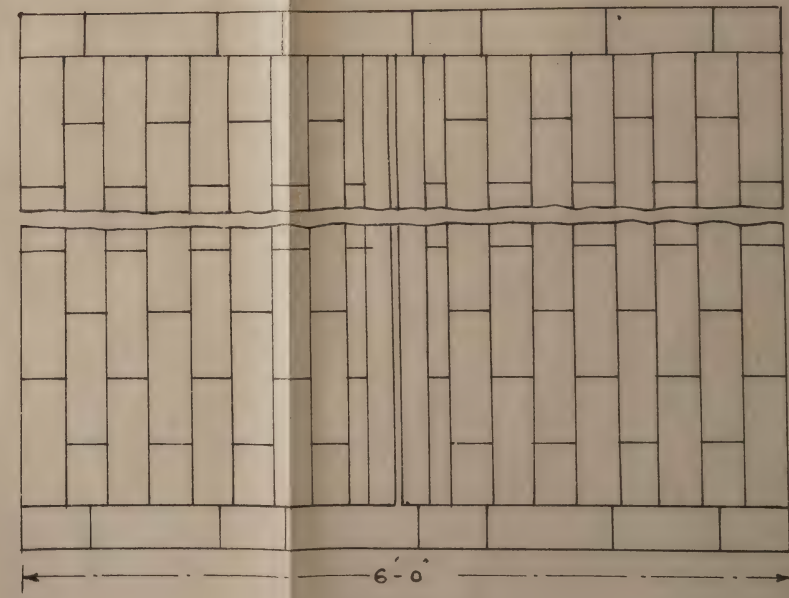
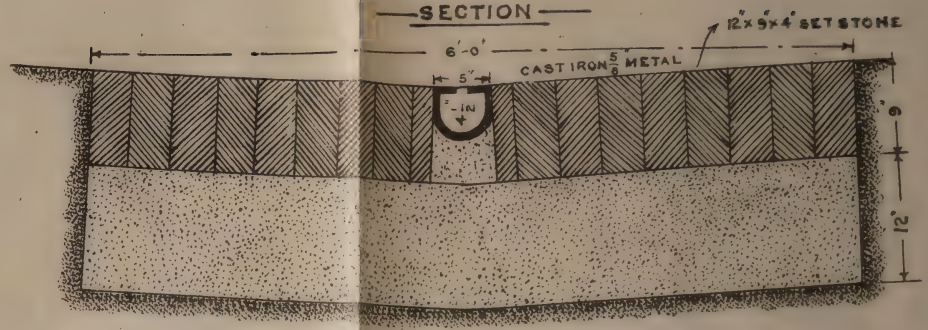


— WASHING-PLACE —
 — SCALE 4 FEET TO AN INCH —
 — SECTION AT A A —



— SECTION AT B B —

— CAB-STAND —
 — $\frac{1}{16}$ FULL SIZE —
 — SECTION —



— PLAN —

WASHINGTON-PLACE

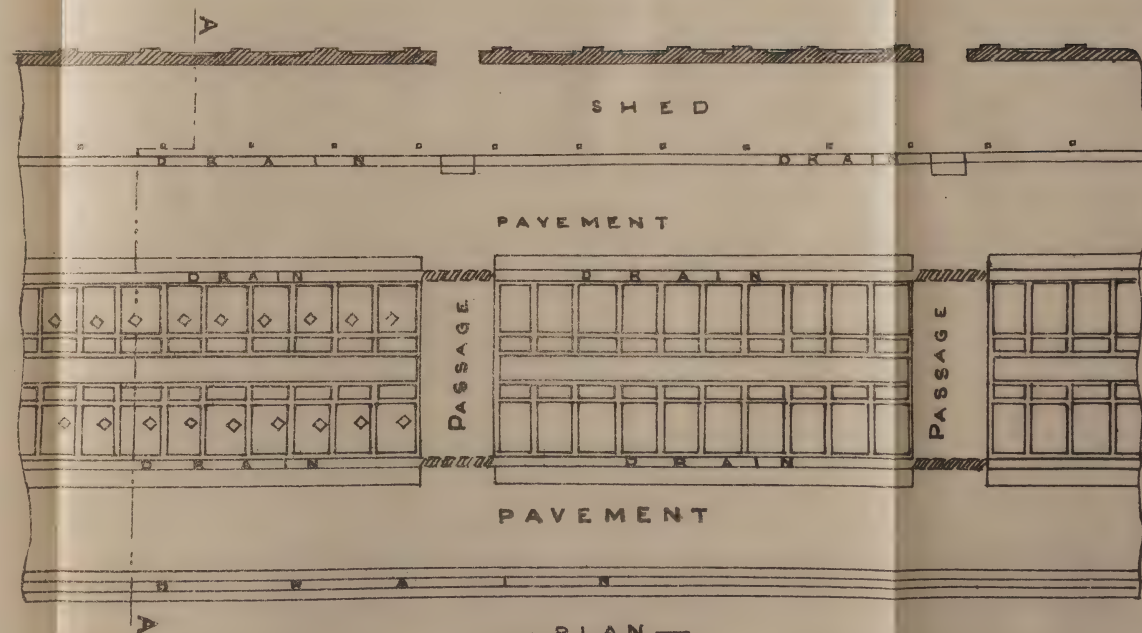
SCALE 4 FEET TO AN INCH

SECTION AT A

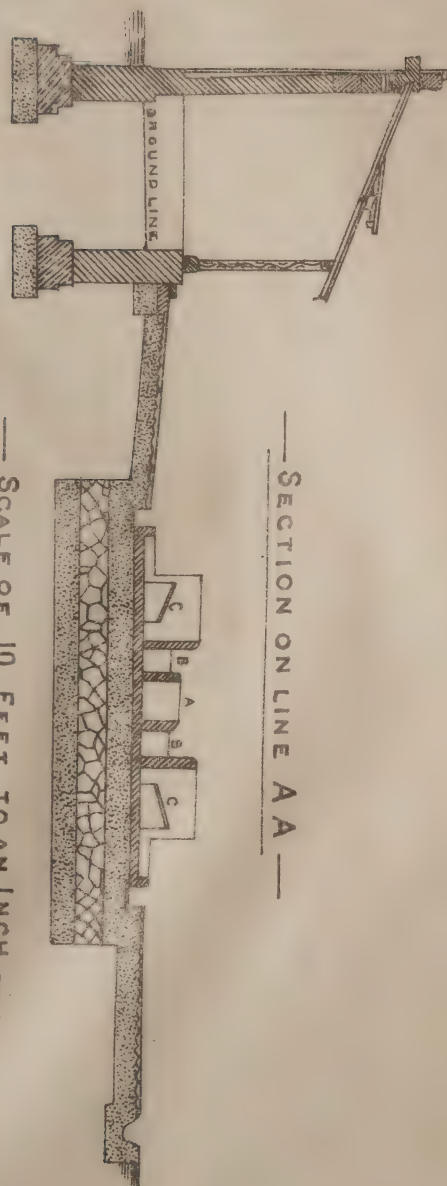


10
10

— DHOBIGHAT —



— SCALE OF 20 FEET TO AN INCH —



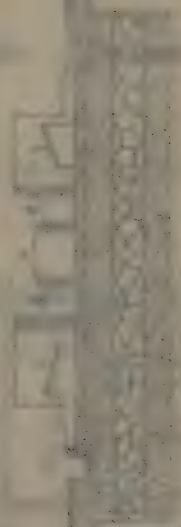
— SCALE OF 10 FEET TO AN INCH —

—TERRACE—



—SECTION ON LINE A—

—SECTION ON LINE B—



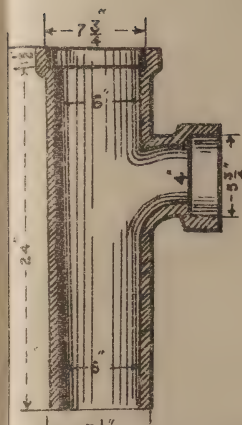
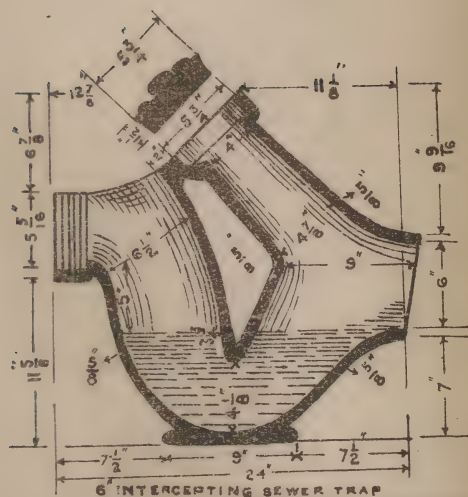
—PAVEMENT—

—FLOOR—

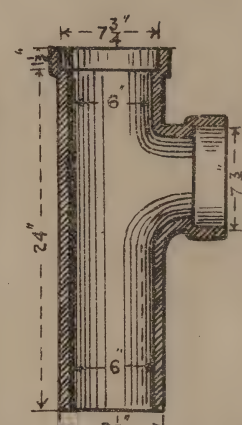
—TOTAL 20 FEET TO A 1000—

DIMENSIONED SKETCHES OF THE PIPES FITTINGS &c

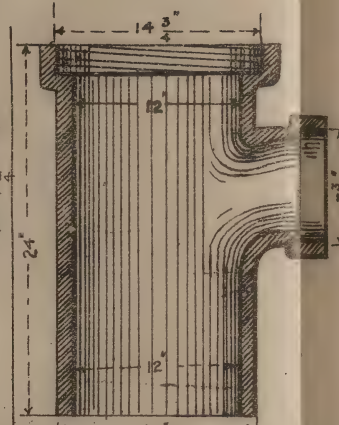
SCALE 1 INCH TO 1 FOOT



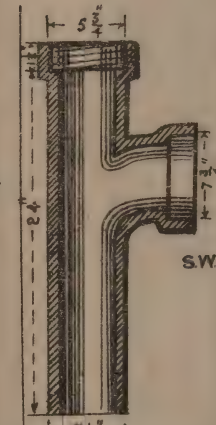
6x4" STONEWARE QUADRANT JUNCTION



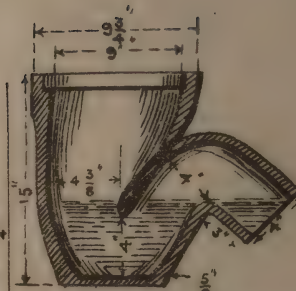
6x6" STONEWARE QUADRANT JUNCTION



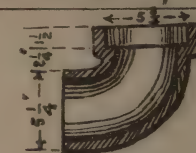
12x6" STONEWARE QUADRANT JUNCTION



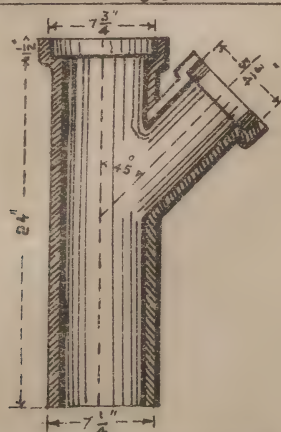
4x4" STONEWARE QUADRANT JUNCTION



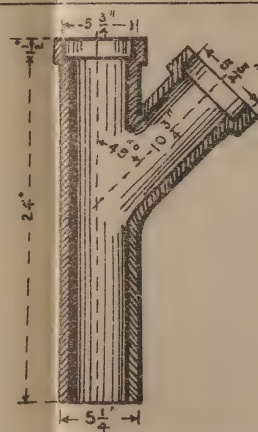
SW GULLY TRAP 9x8 WITH 4" OUTLET



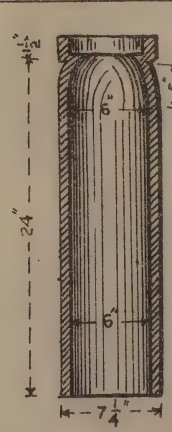
4" STONEWARE KNUCKLE BEND



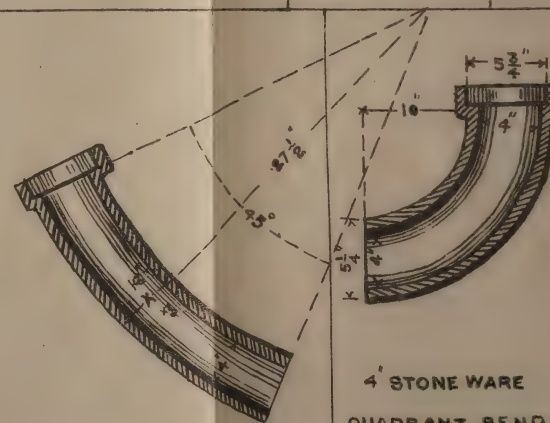
6x4" S.W. OBLIQUE JUNCTION



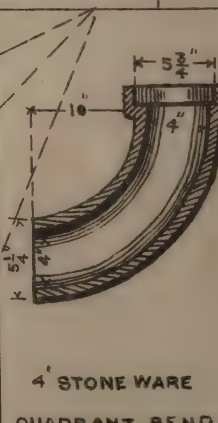
4x4" STONEWARE OBLIQUE JUNCTION



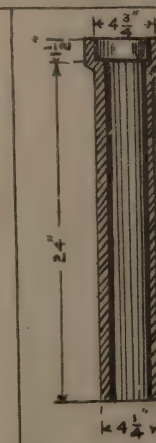
6x4" STONEWARE TAPER PIECE



4" STONEWARE SEGMENTAL BEND



4" STONEWARE QUADRANT BEND

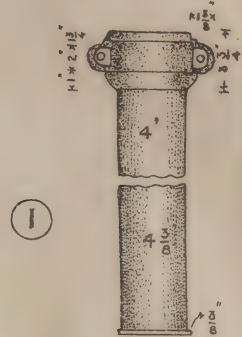


3" STONEWARE PIPE

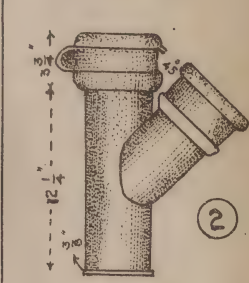
DIMENSIONED SKETCHES OF THE PIPE FITTINGS &c

PLATE 38.

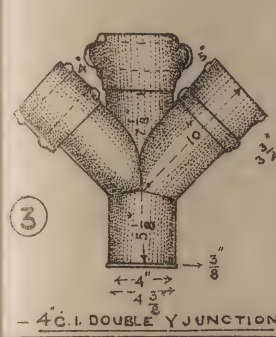
SCALE 1 INCH TO 1 FOOT



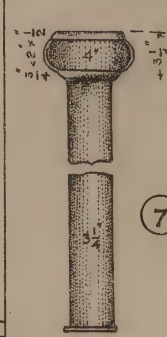
4 C.I. PIPE $\frac{3}{16}$ THICK



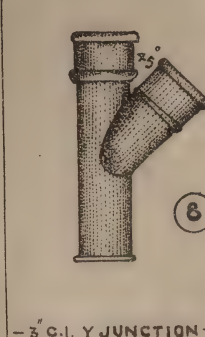
4 C.I. SINGLE Y JUNCTION



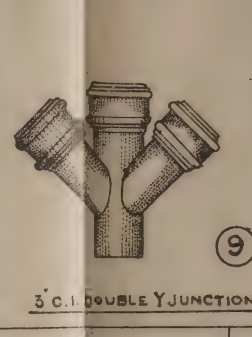
4 C.I. DOUBLE Y JUNCTION



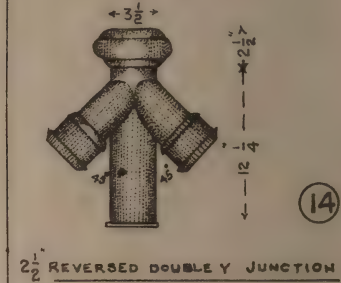
3 C.I. PIPE



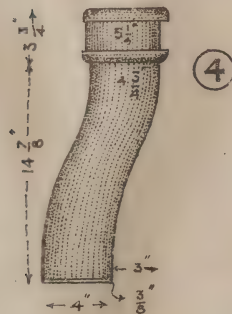
3 C.I. Y JUNCTION



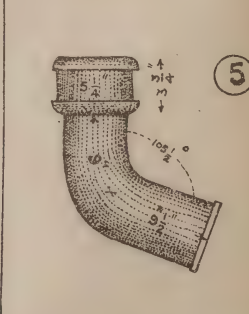
3 C.I. DOUBLE Y JUNCTION



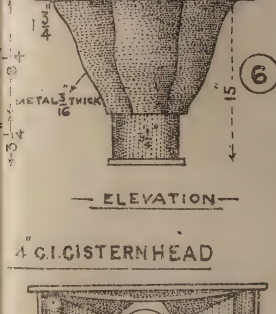
2 1/2 REVERSED DOUBLE Y JUNCTION



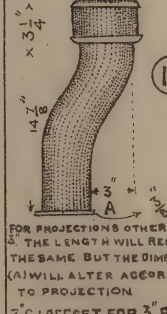
4 C.I. OFFSET



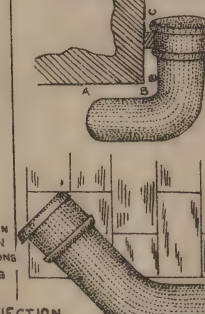
4 C.I. OBTUSE ANGLE PIECE



4 C.I. CISTERN HEAD



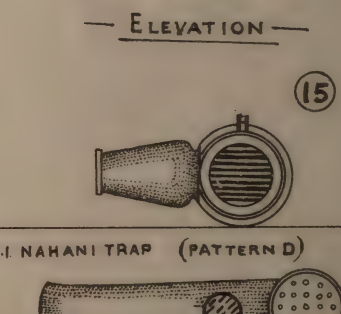
3 C.I. OFFSET FOR 3' PROJECTION



3 C.I. HORIZONTAL ANGLE PIECE

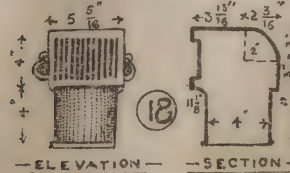


3 C.I. CISTERN-HEAD

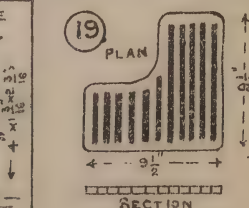


3 C.I. NAHANI TRAP (PATTERN D)

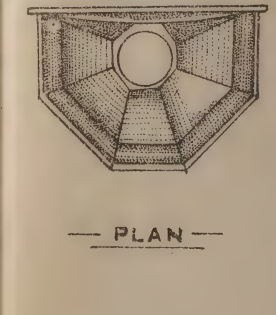
4 GALVANIZED C.I. MICA VALVE



ELEVATION SECTION



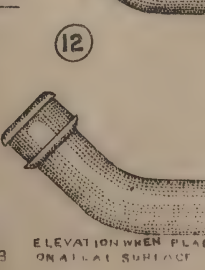
PLAN SECTION



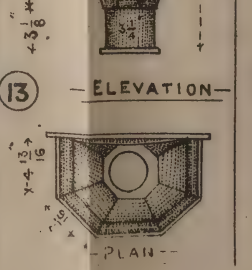
PLAN



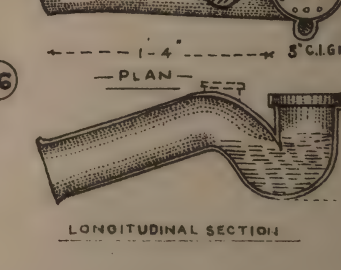
ELEVATION TOWARDS AB



ELEVATION WHEN PLACED ON A WALL SURFACE



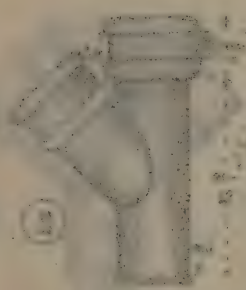
PLAN



LONGITUDINAL SECTION

SKETCHES OF THE PIPE FITTINGS &c

SCALE 1/4" = 1" (INCH)

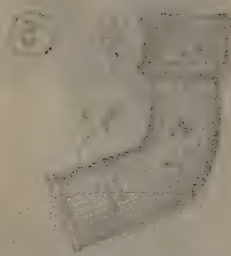


(1)

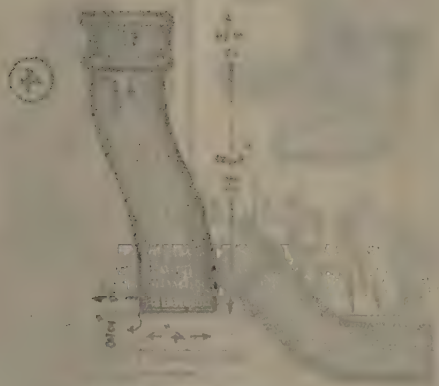


(2)

1/2" DIA. BRANCH

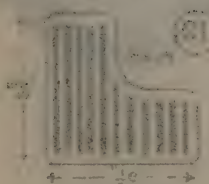


(3)

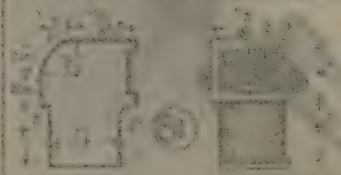


(4)

1/2" DIA. BRANCH



(5)



(6)

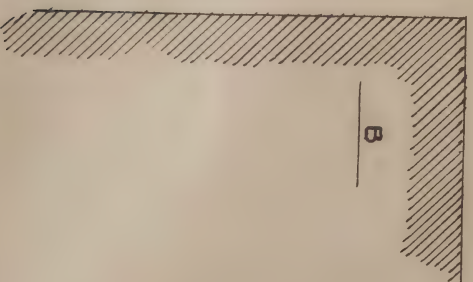
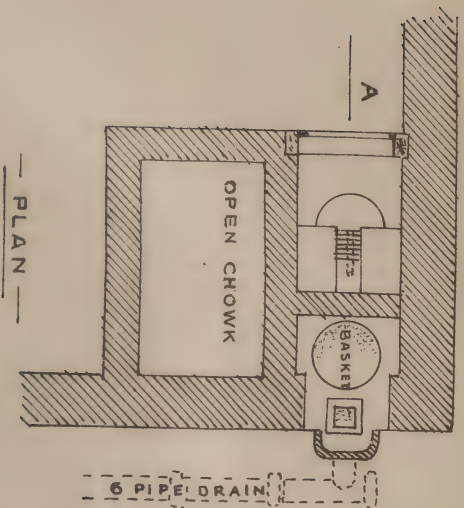
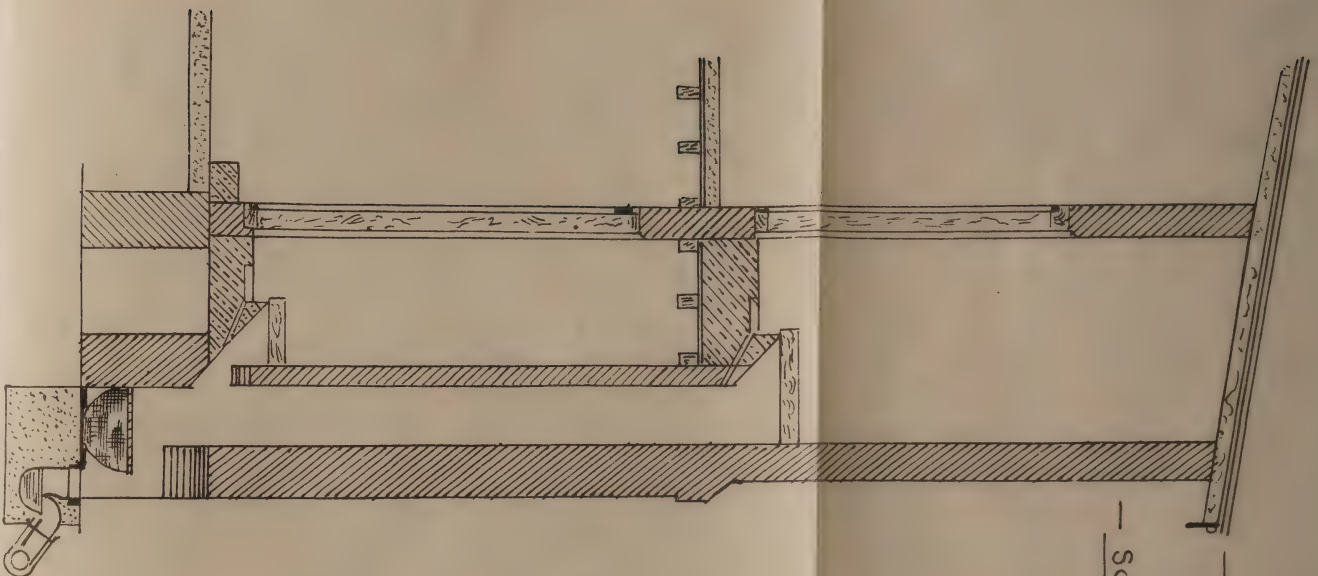
1/2" DIA. BRANCH

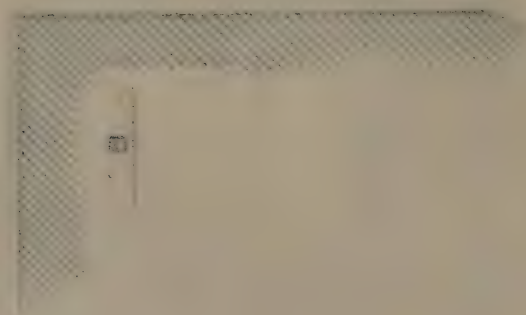
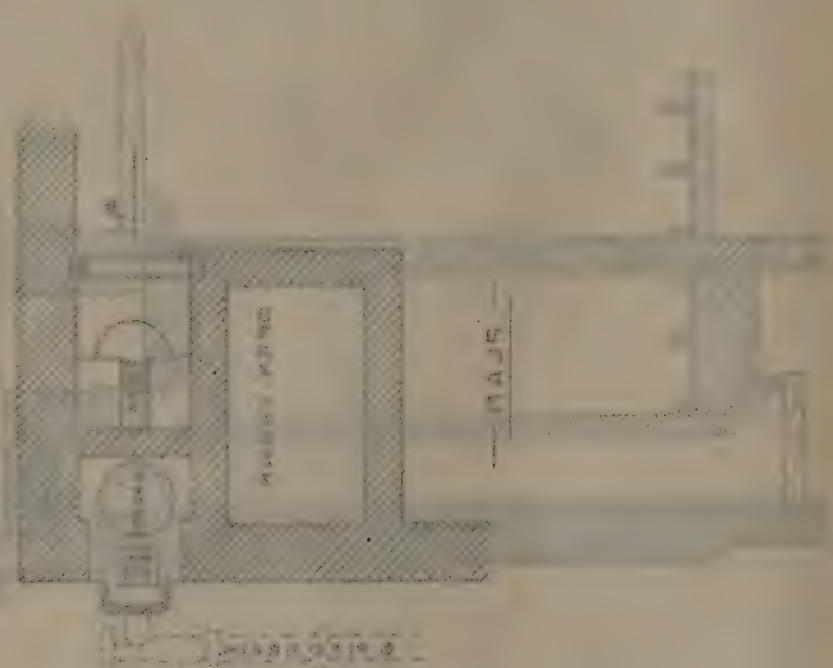
1/2" DIA. BRANCH

SECTION ON A.B.

INDIAN PRIVY.

SCALE 4 FEET TO AN INCH.



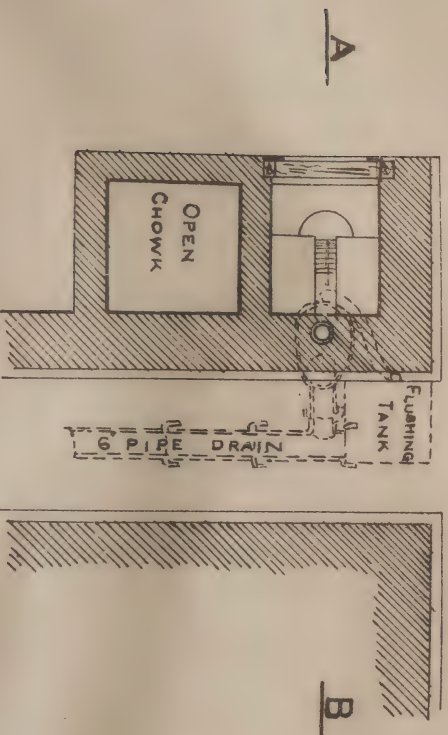
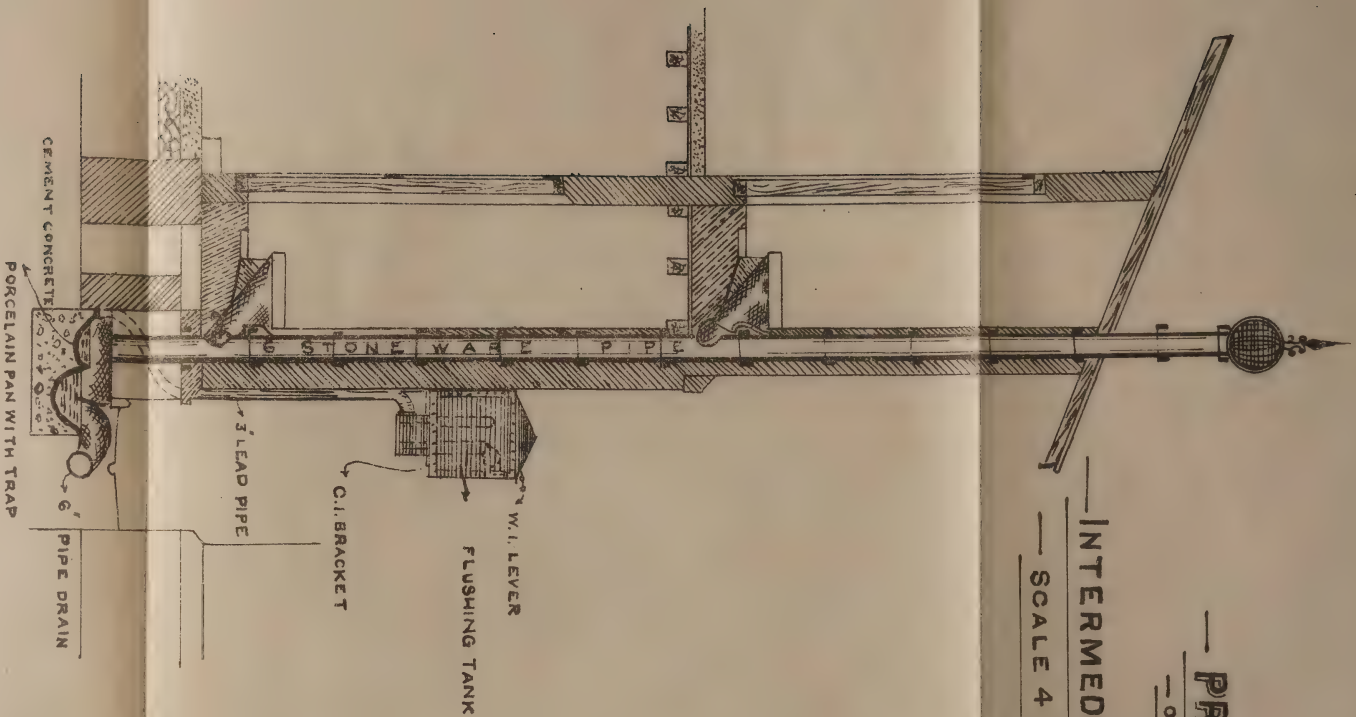


SECTION ON A.B.

PRIVY
ON

INTERMEDIATE SYSTEM

SCALE 4 FEET TO 1 INCH



PLAN

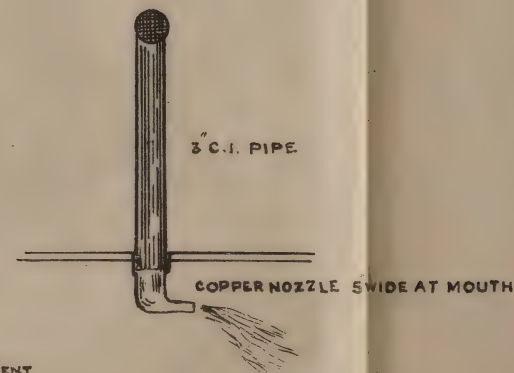
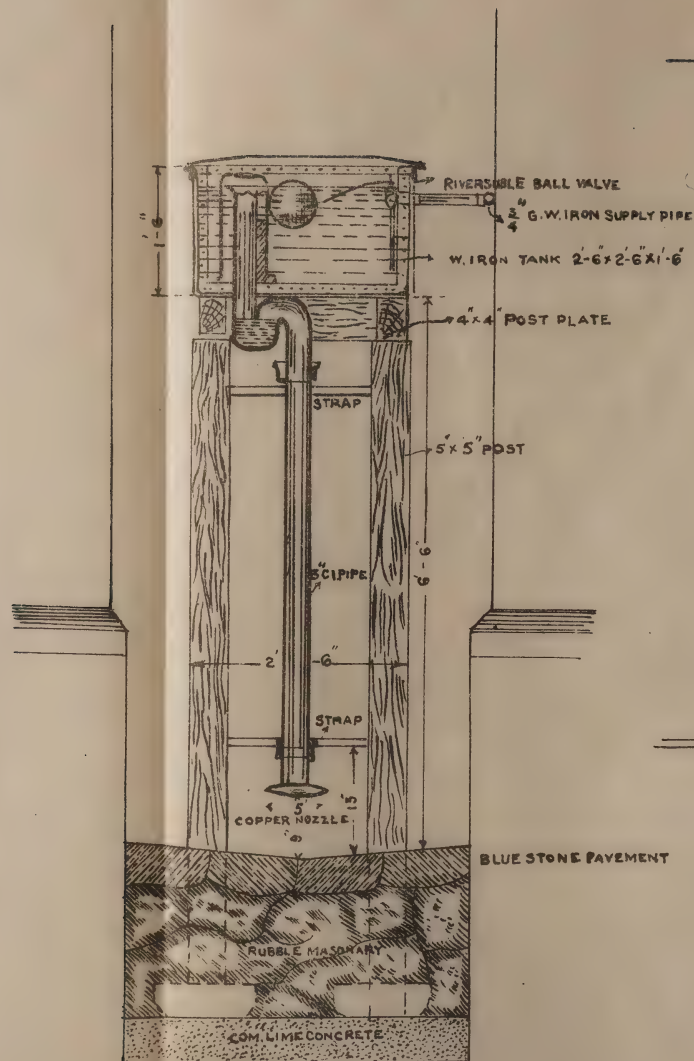


DETAILS OF FLUSHING TANK

AT THE

END OF HOUSE GULLIES

SCALE $\frac{1}{2}$ " INCH TO 1 FOOT.



DETAIL OF FL

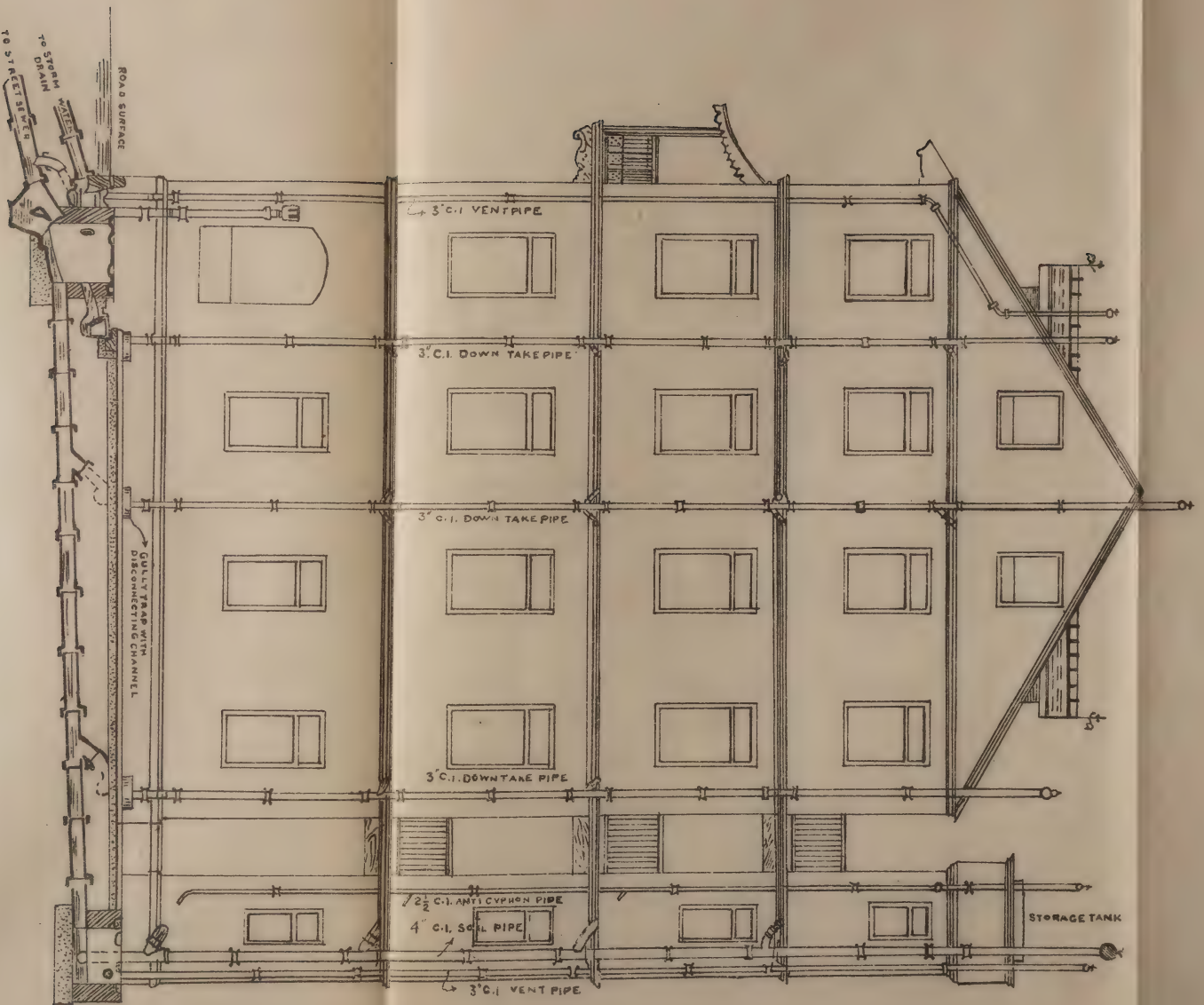
AT

ONE OF TWO

...



TYPE OF HOUSE - CONNECTIONS WITH A
6" PIPE DRAIN



SCALE 8 FEET TO AN INCH



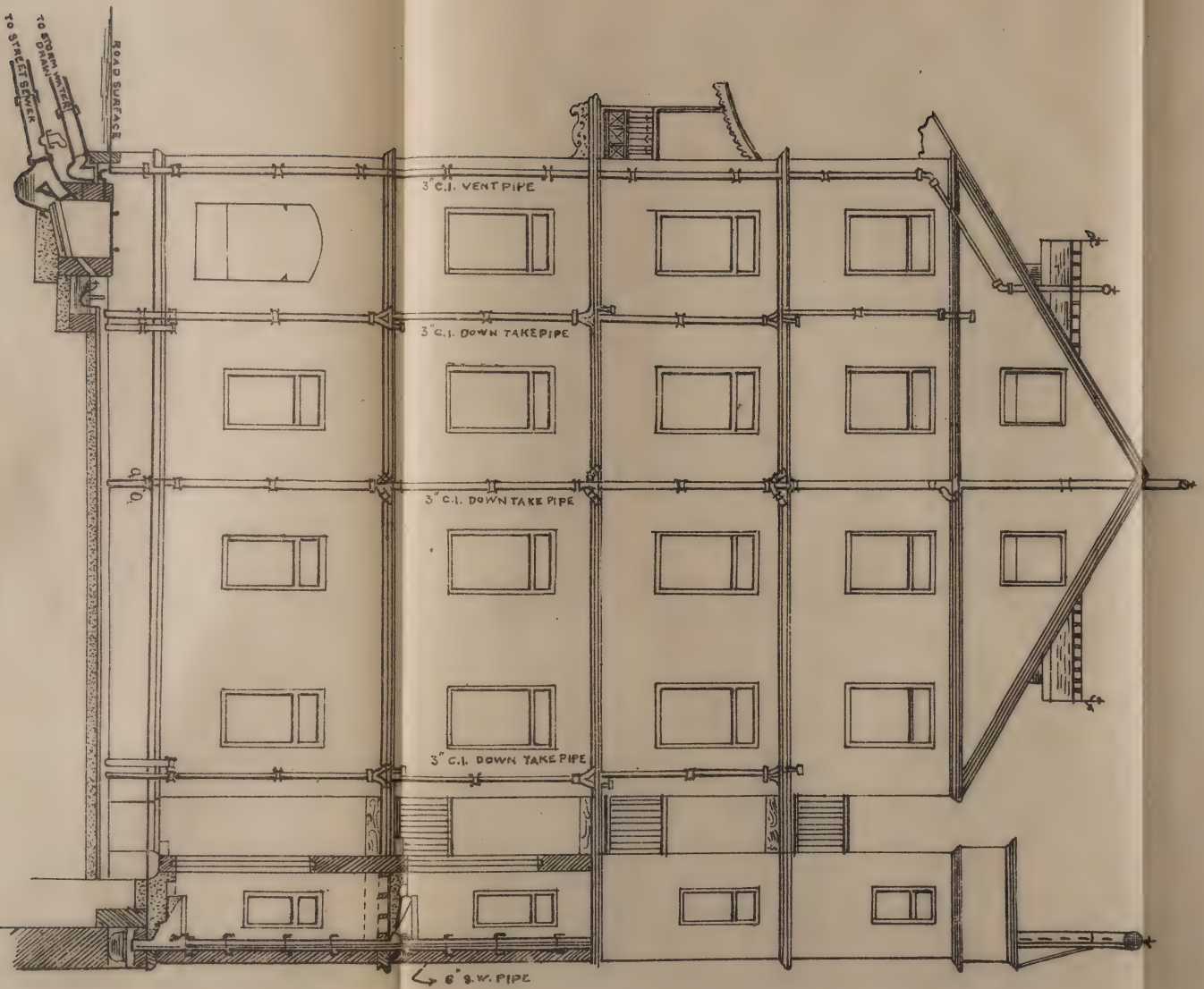
SCALE 8 FEET TO AN INCH

DISCHARGING CHANNEL

LEAKAGE

WATER

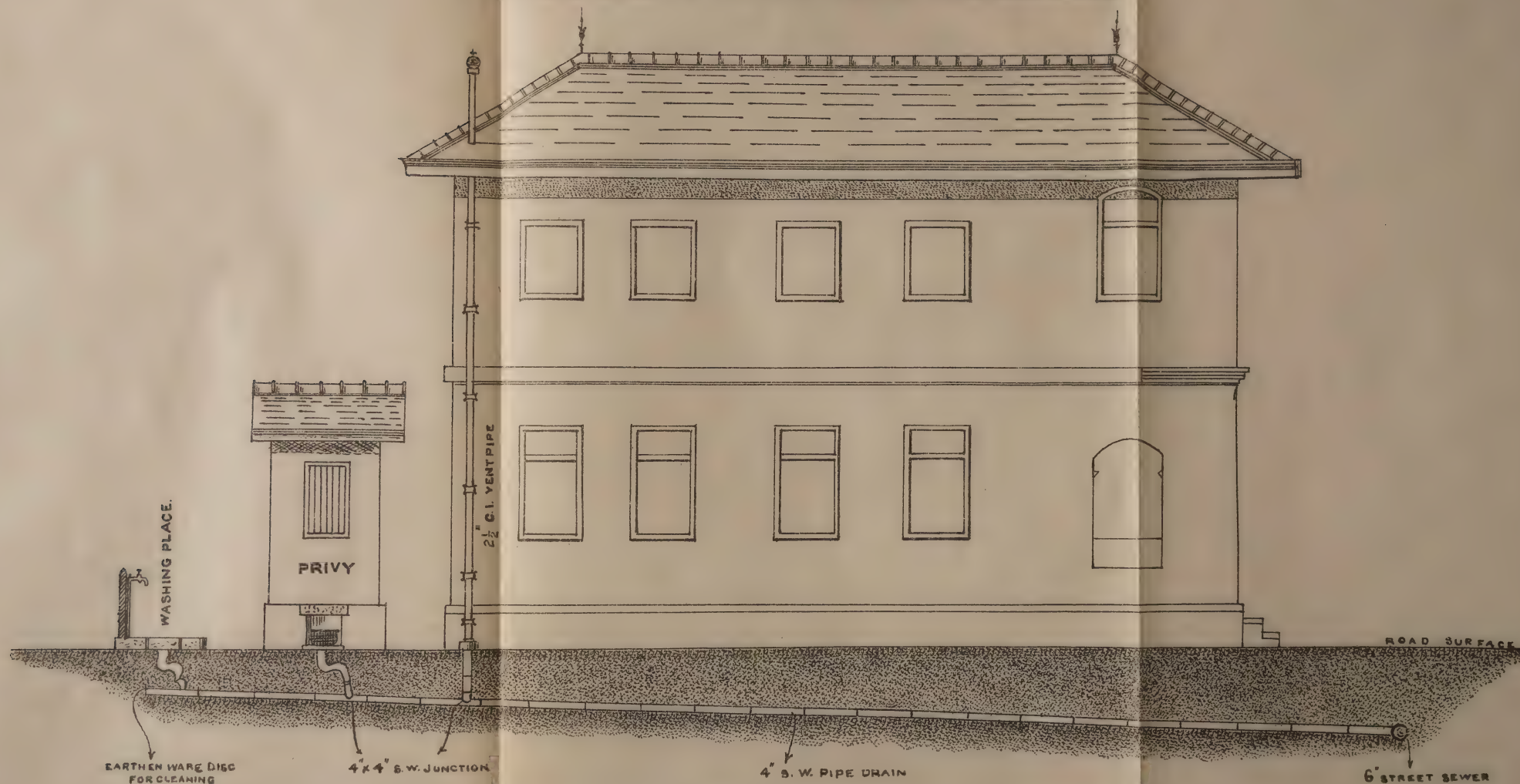
TYPE OF HOUSE-CONNECTIONS WITH AN
OPEN DRAIN



SCALE 8 FEET TO AN INCH

A SIMPLE TYPE OF HOUSE CONNECTIONS

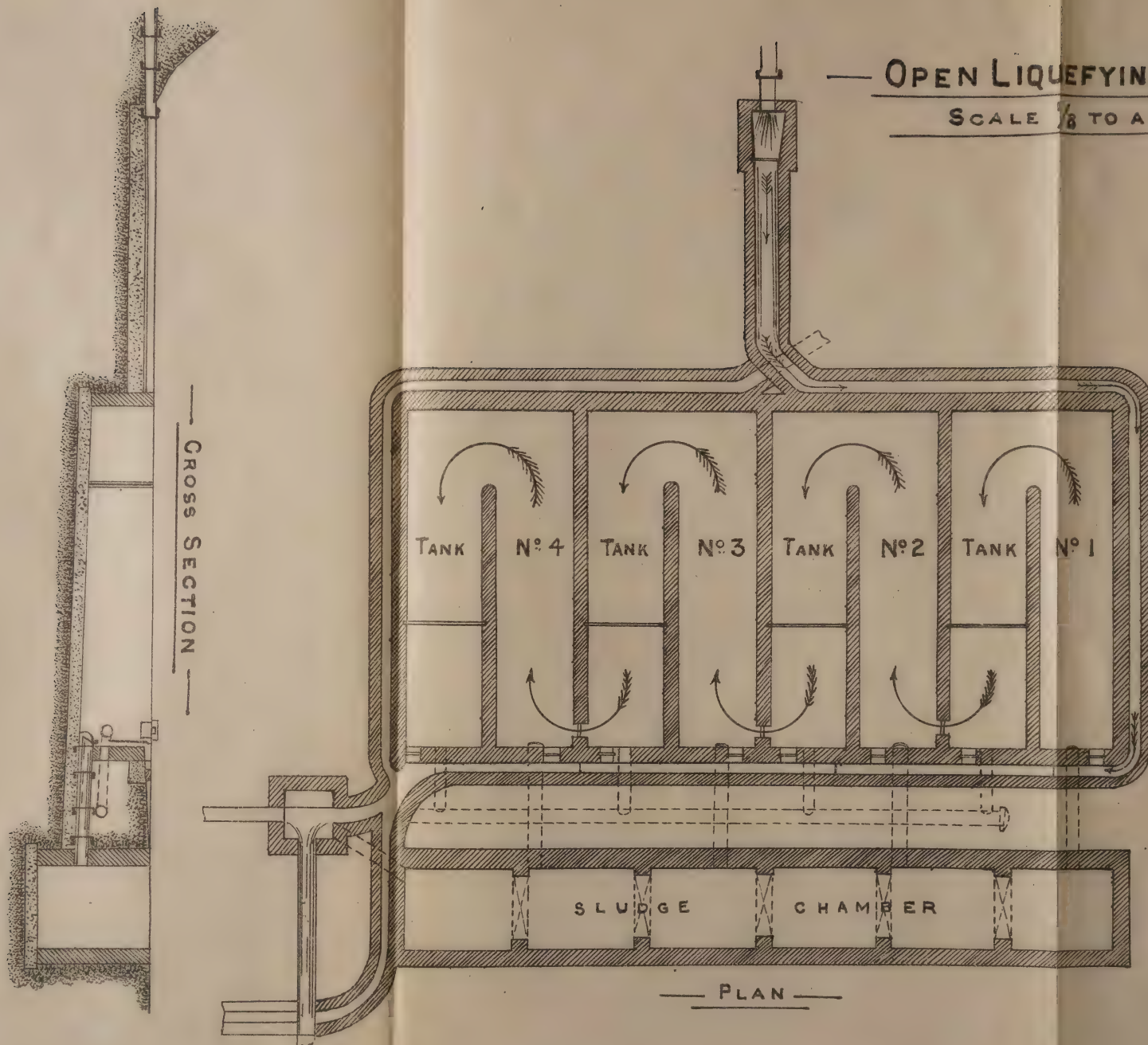
PLATE 44.



SCALE 6 FEET TO AN INCH

— OPEN LIQUEFYING TANKS. —

SCALE $\frac{1}{8}$ TO A FOOT



— CROSS SECTION —

— PLAN —

OPEN LION

2000

— QUESS SECTION —

TANK

END

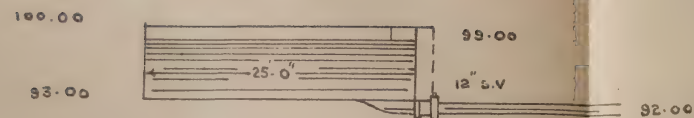
TANK

NOTE
DESIGNED FOR A SEWAGE SUPPLY OF
12,00,000 GALLONS PER DIEM.

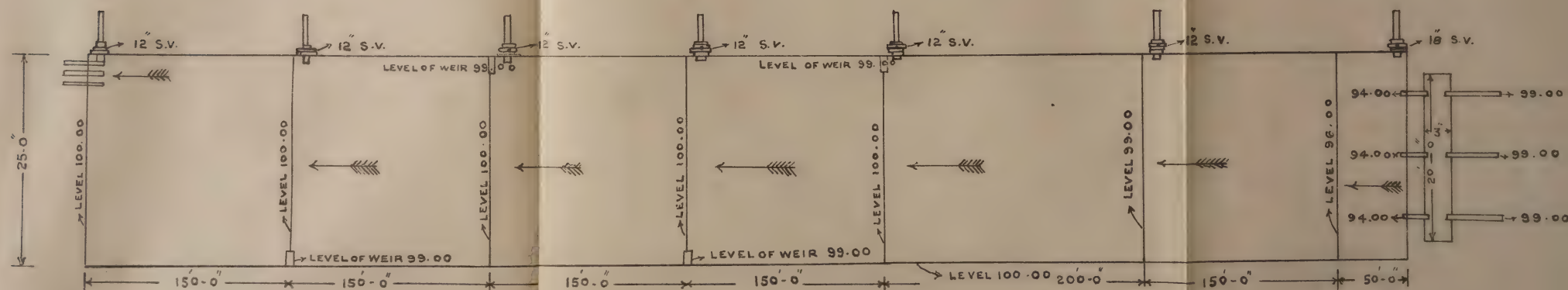
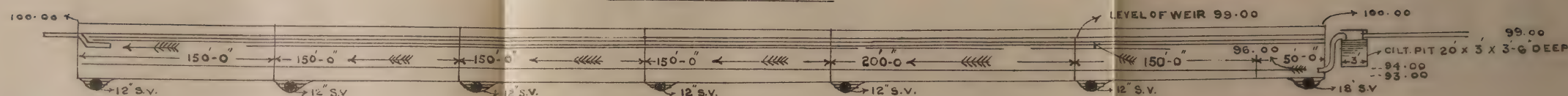
LIQUEFYING TANKS

FOR THE
SEWERAGE OF AHMEDABAD

CROSS SECTION

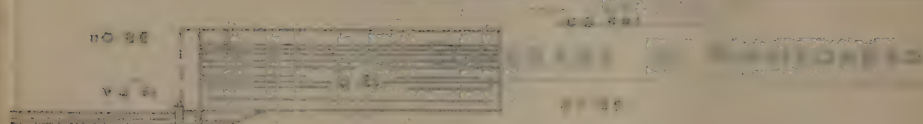


LONGITUDINAL SECTION

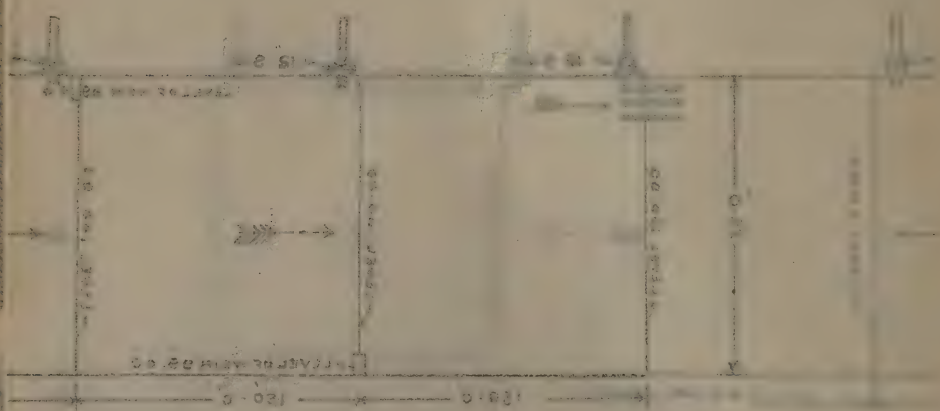


PLAN

LIQUEFYING TANKS



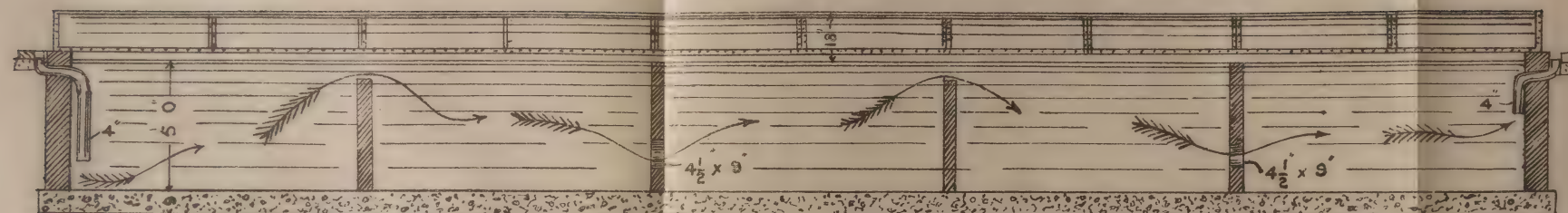
CROSS SECTION



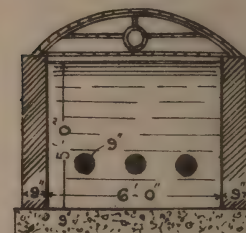
COVERED LIQUEFYING TANKS.

SCALE 6 FEET TO 1 INCH

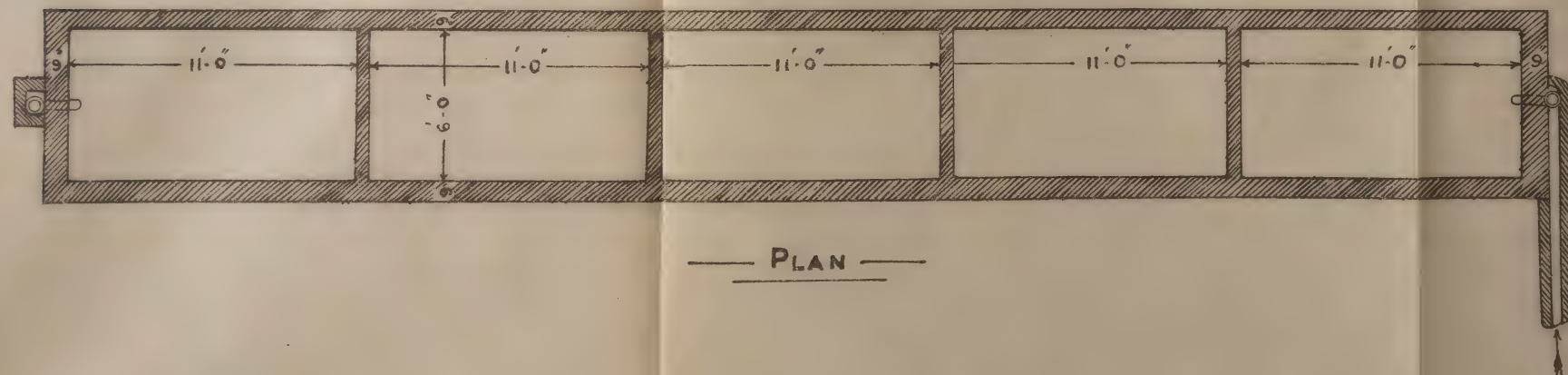
LONGITUDINAL SECTION



CROSS SECTION



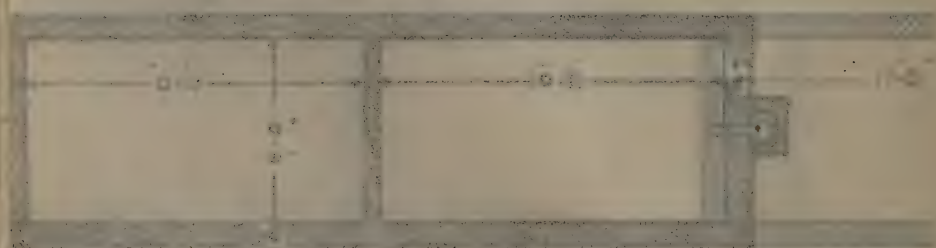
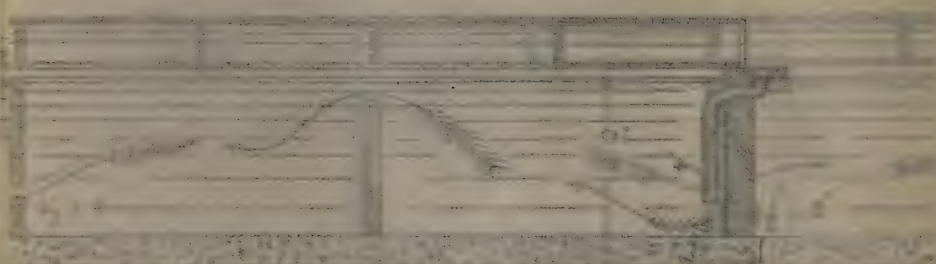
PLAN



BRANT AND OVE

BRANT AND OVE

BRANT AND OVE

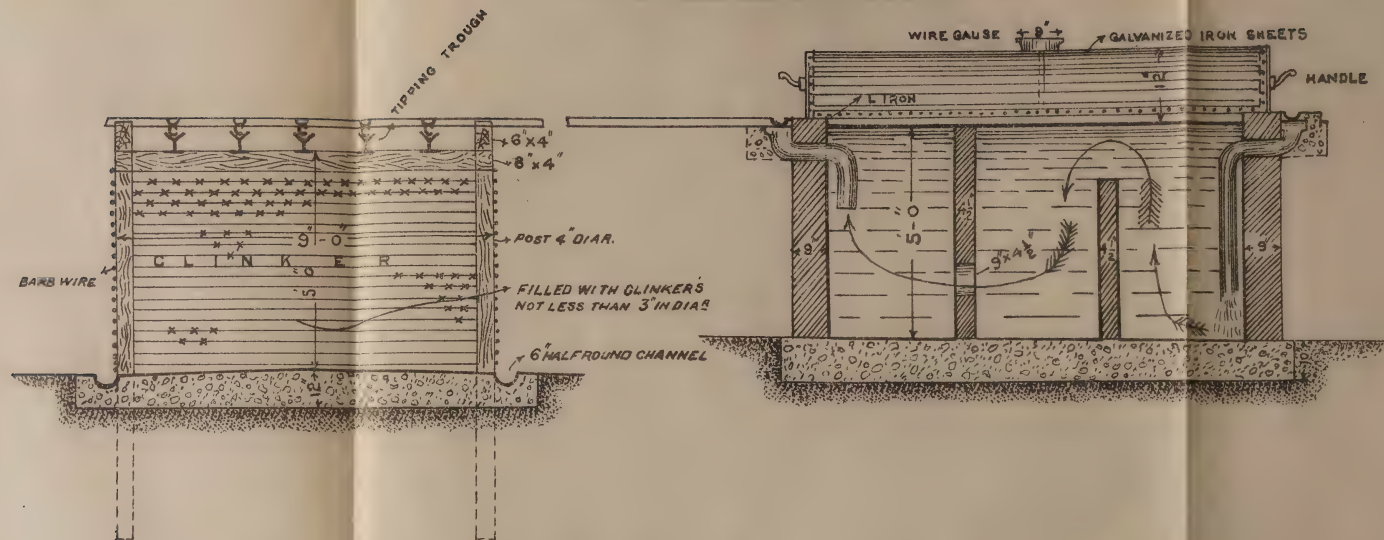


— LIQUEFYING TANK & FILTER —

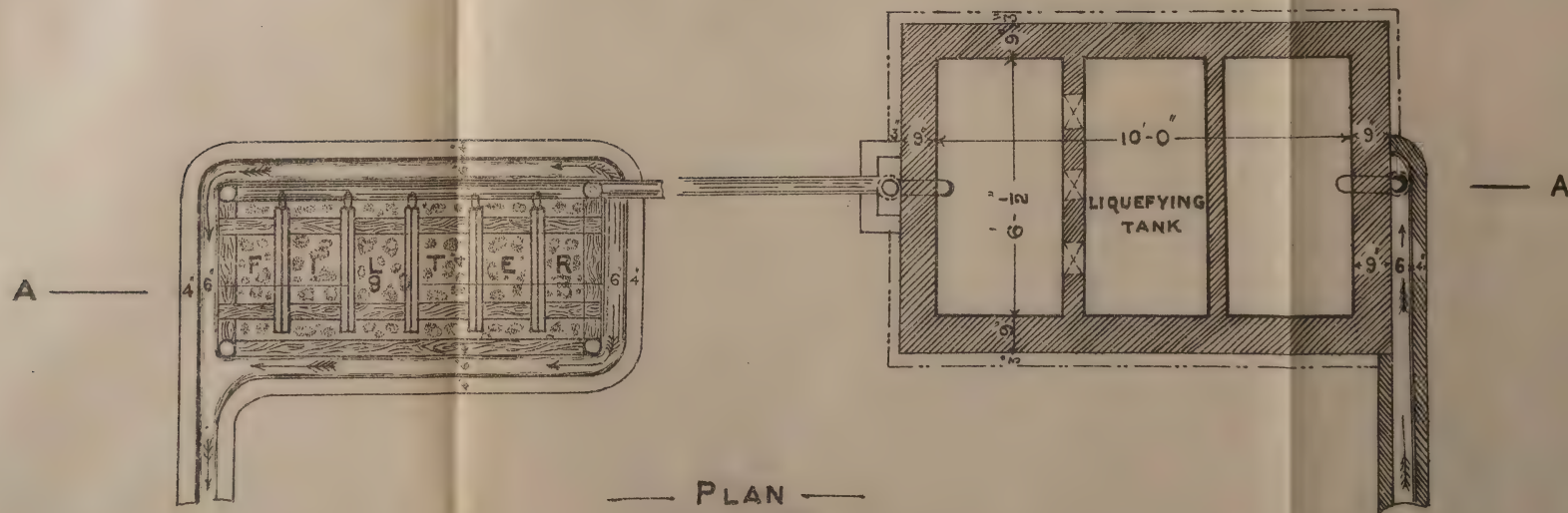
— FOR —

— A BUNGALOW —

— SCALE 4 FEET TO AN INCH —



— SECTION AT A.A. —



— PLAN —

LIQUEFYING TARRAFILTER

FIG. 1

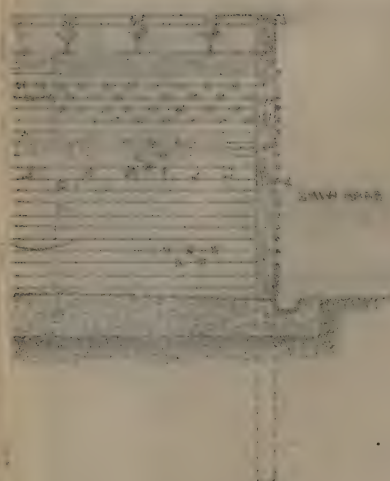
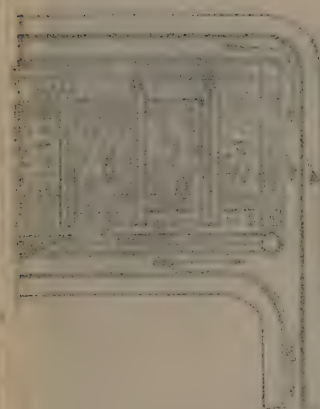


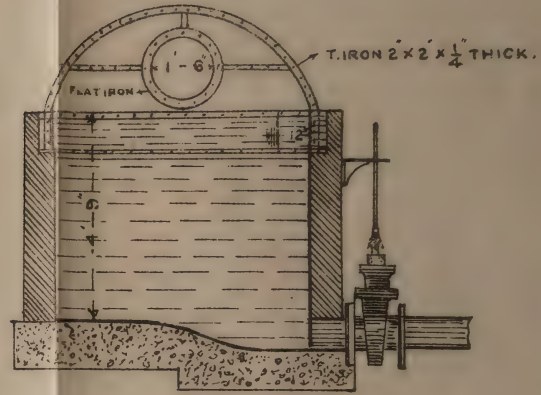
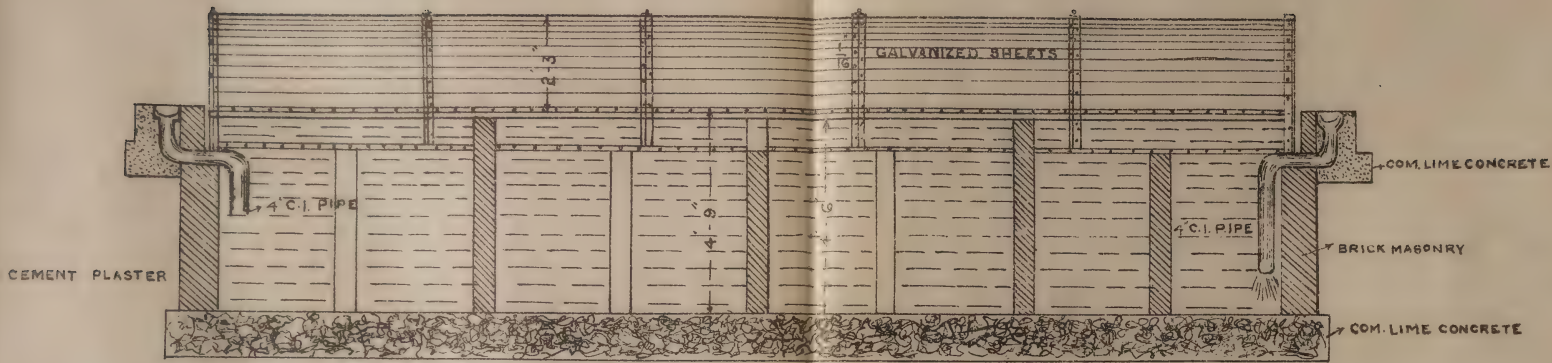
FIG. 2



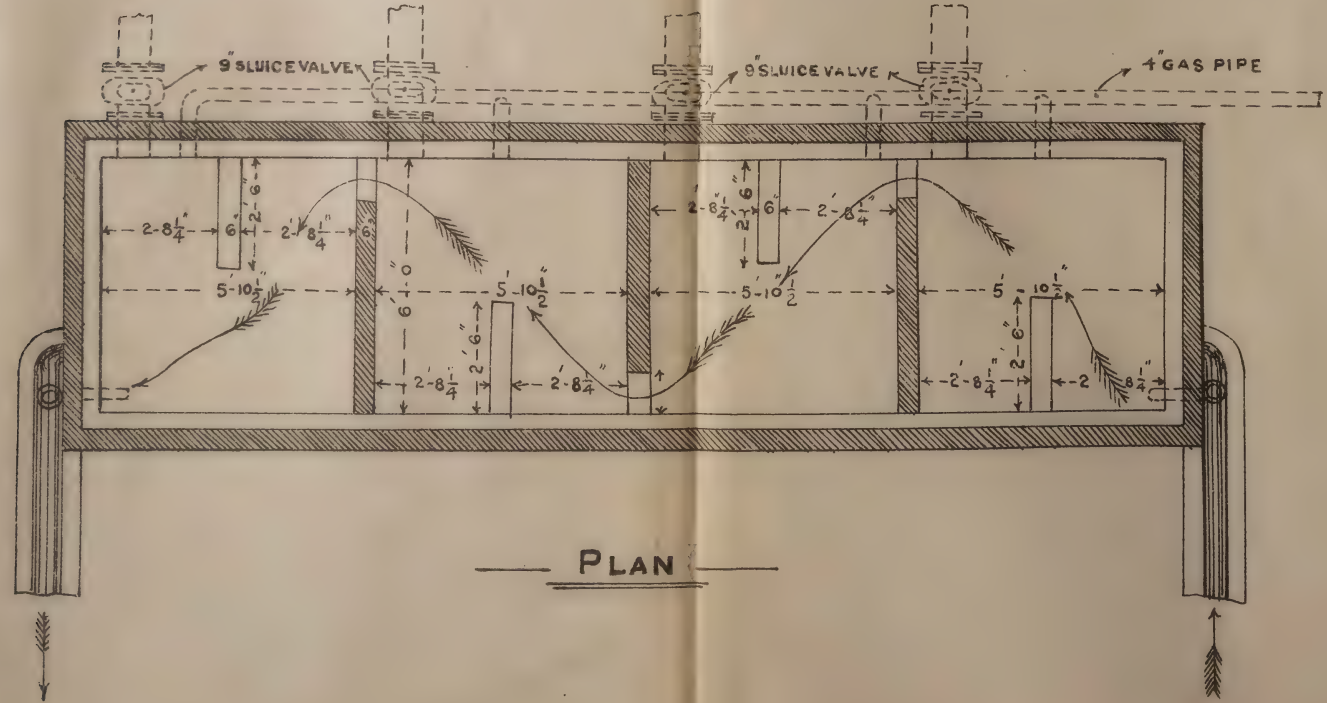
— DESIGN FOR A COVERED LIQUEFYING TANK. —

— SCALE 4 FEET TO 1 INCH —

— LONGITUDINAL SECTION —

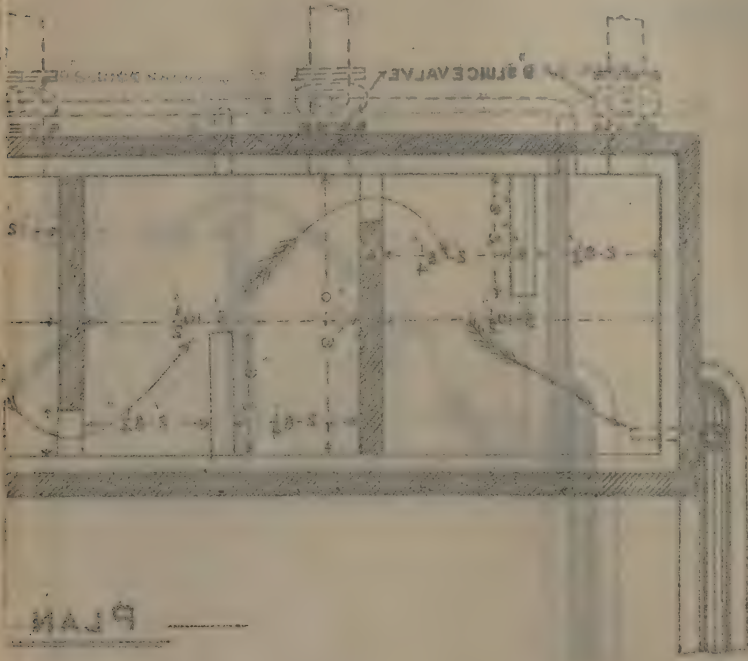
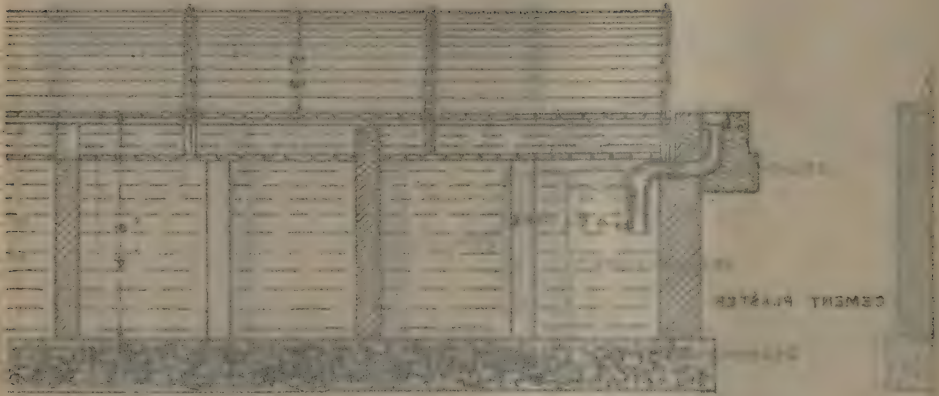


— CROSS SECTION —

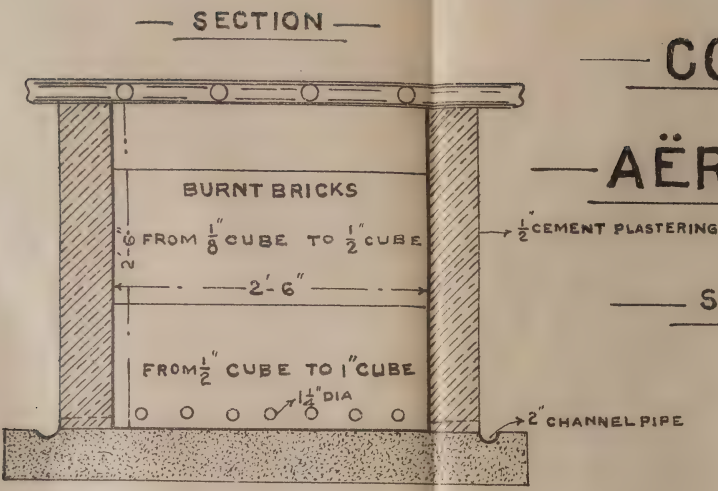


— PLAN —

LONGITUDINAL

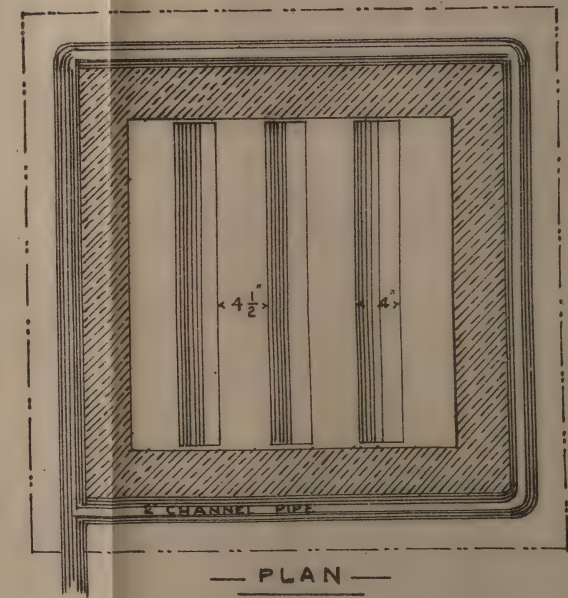
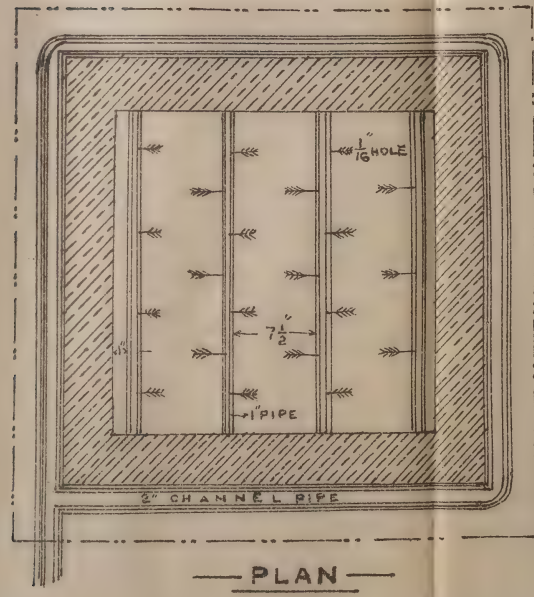
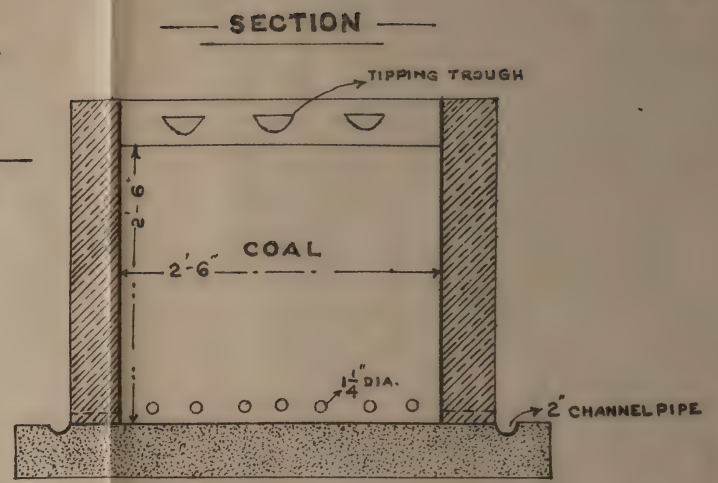


PLAN



CONTINUOUS
AEROBIC FILTER

SCALE 3/4" TO A FOOT



SECTION

CONTINUOUS

AIR AND FILTER

4 FOOT

BRICKS THREE

FROM $\frac{1}{8}$ CUBE TO $\frac{1}{2}$ CUBE

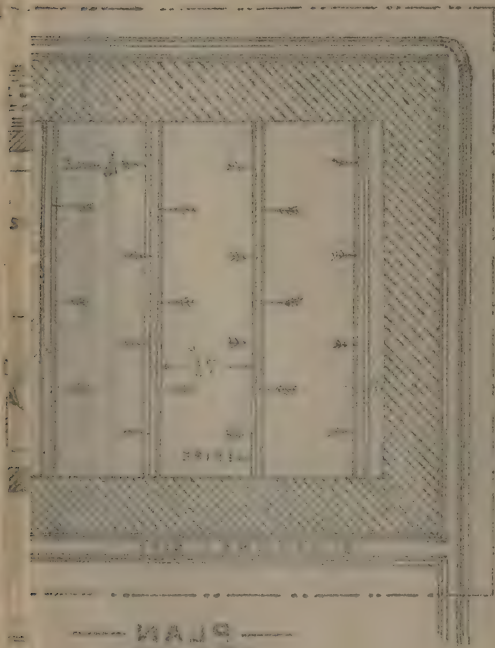
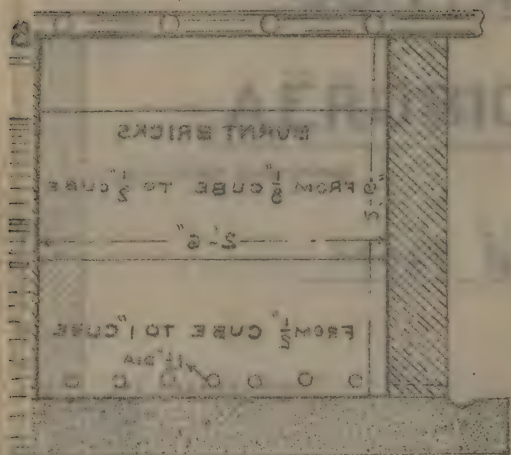
5'-6"

FROM $\frac{1}{2}$ CUBE TO 1 CUBE

11'-0"

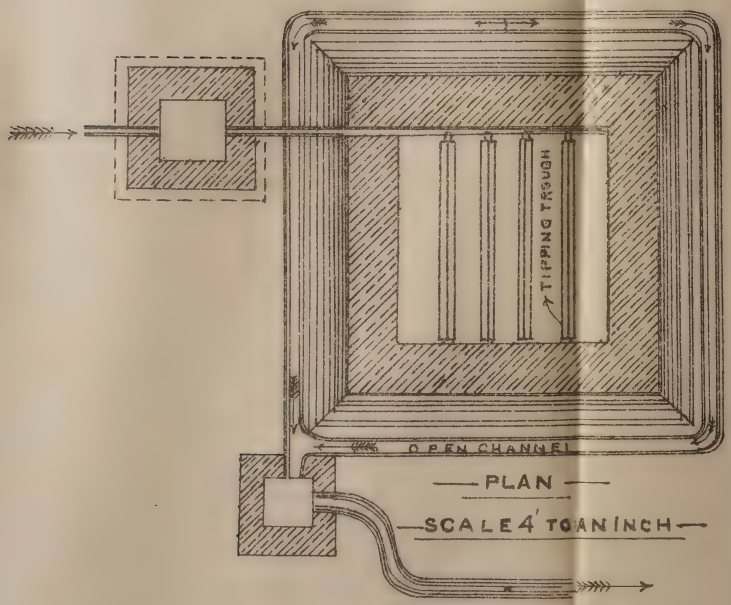
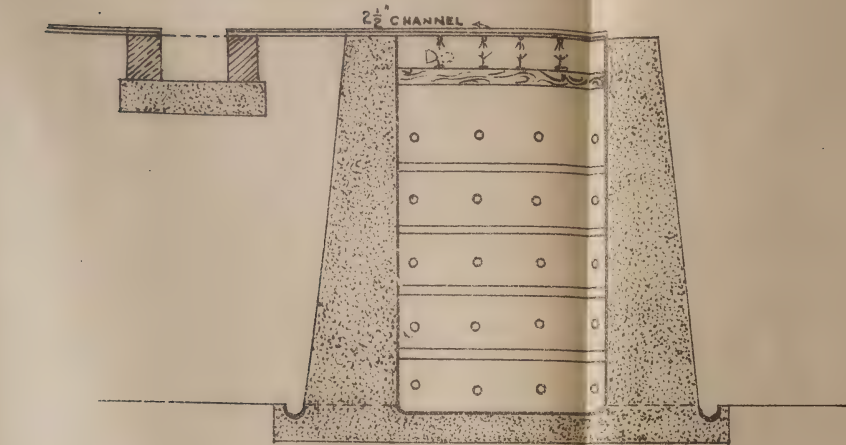
0 0 0 0 0 0 0 0

PLAN

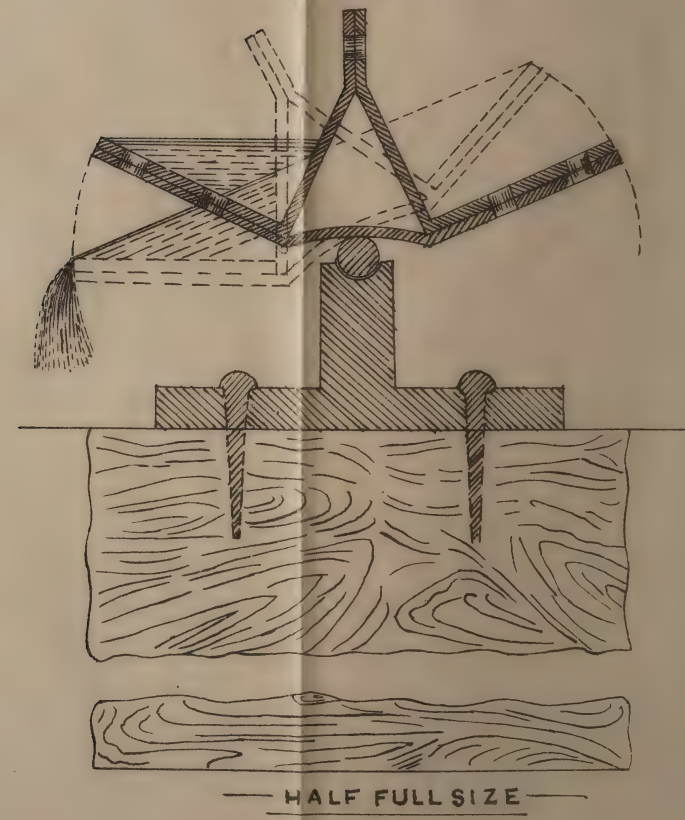


— 8 FT DUCAT FILTER —

— SECTION —

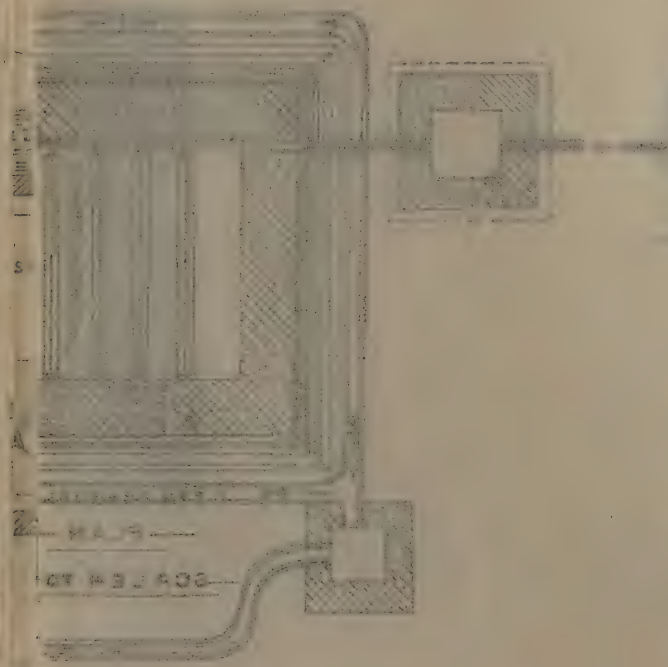
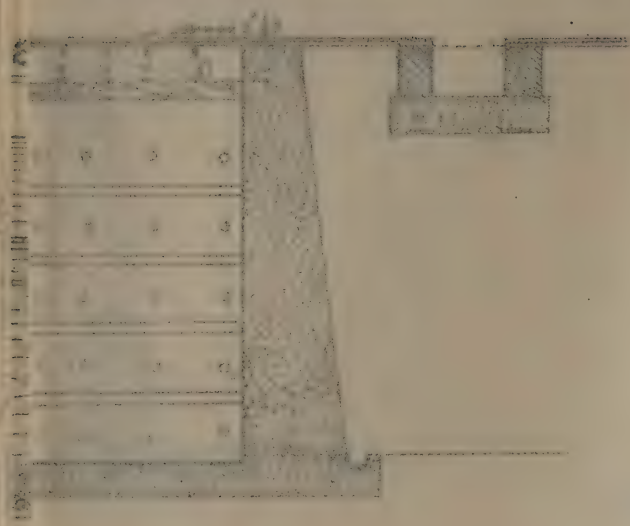


— SECTION —
— OF TIPPING TROUGH —

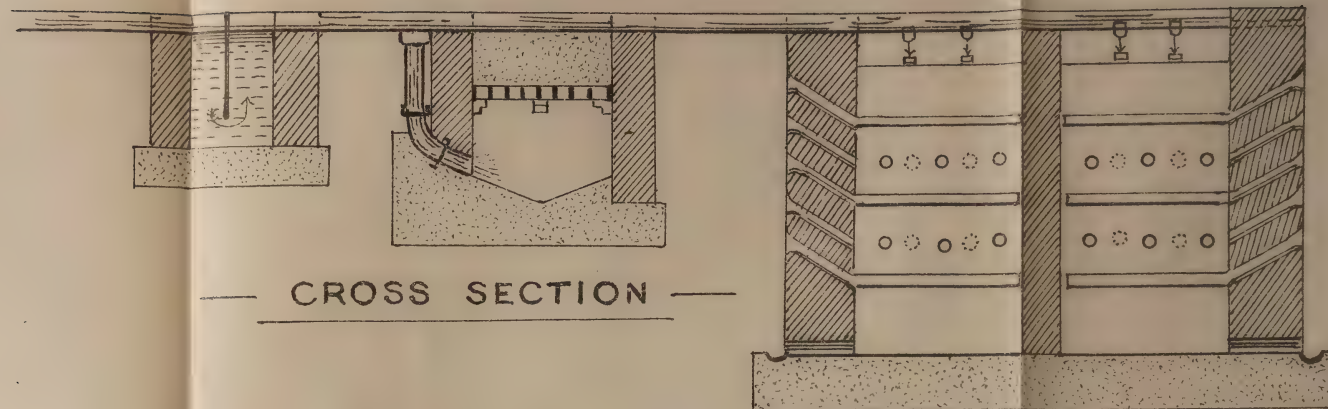


ACAD. DUCA

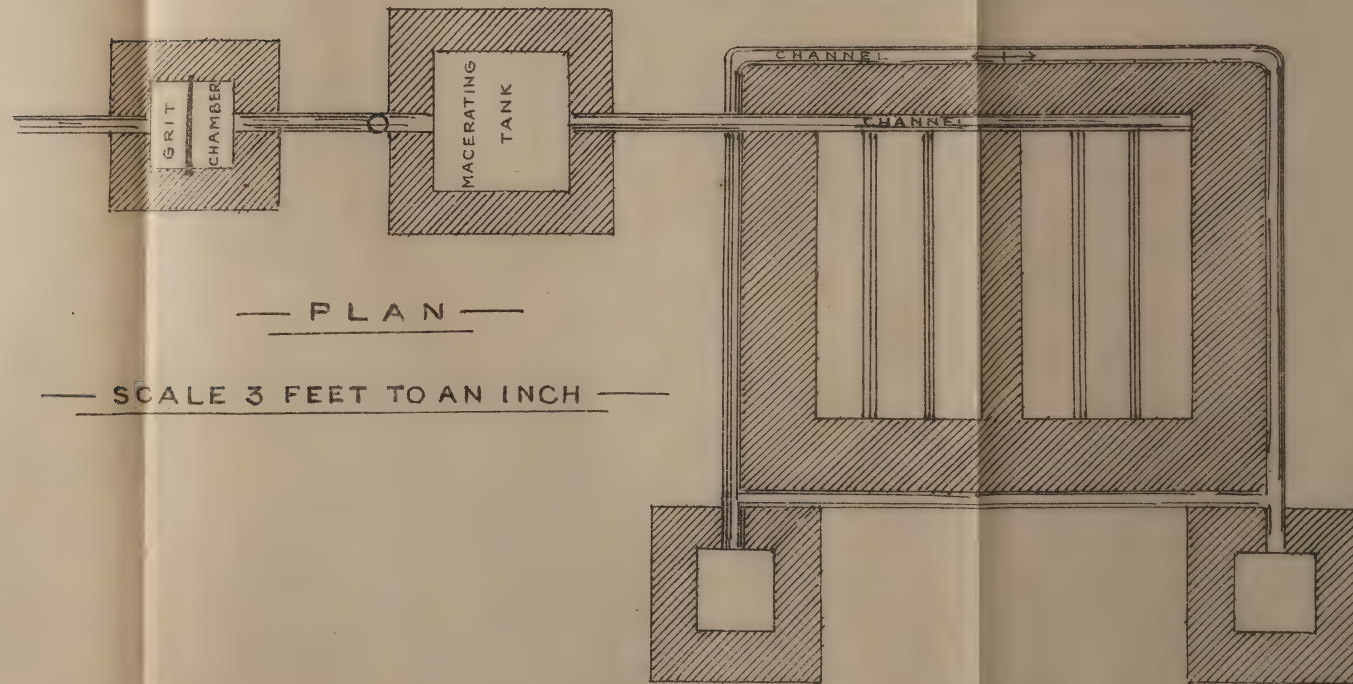
SECTION



— 5 FT DUCAT FILTER —



— CROSS SECTION —



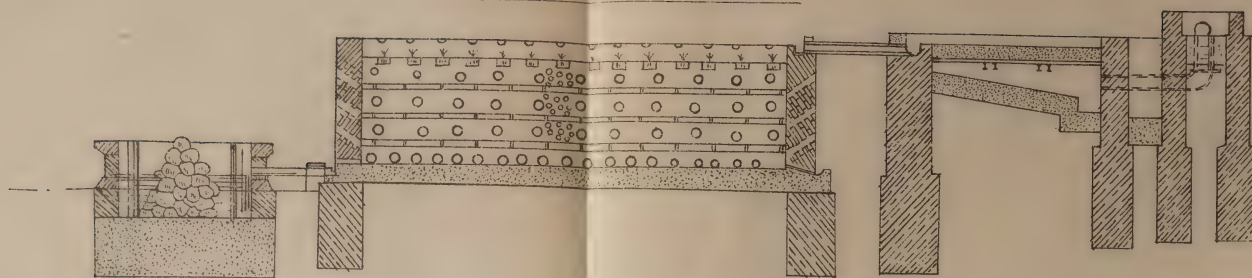
— PLAN —

— SCALE 3 FEET TO AN INCH —

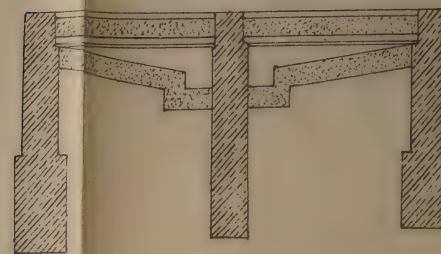
5" DUCAT FILTER



— SECTION ON A B —



— SECTION ON C D —

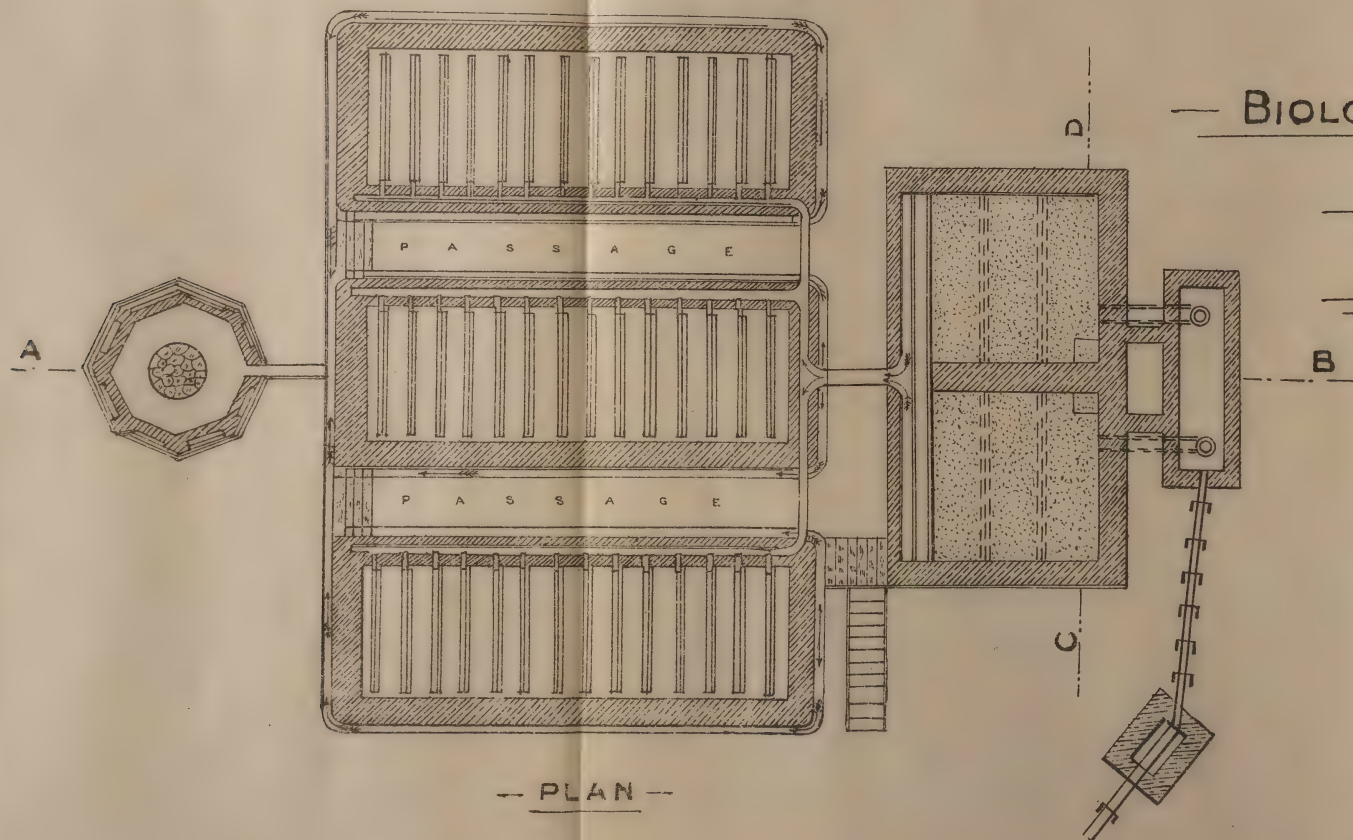


— BIOLOGICAL INSTALLATION —

— AT —

— A SANATORIUM —

— SCALE 10' TO 1" —

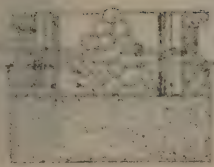
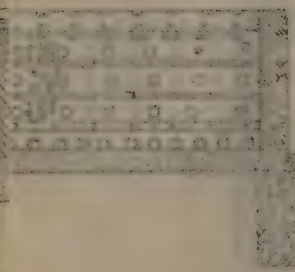


— PLAN —

1032-4-5

— 21

1032-4-5

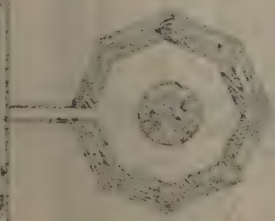
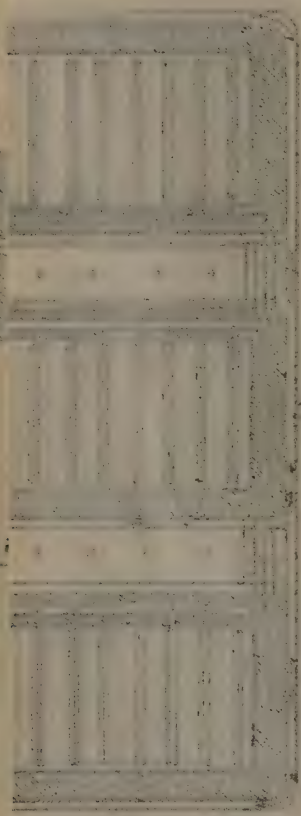


Diagram

— A

— 30

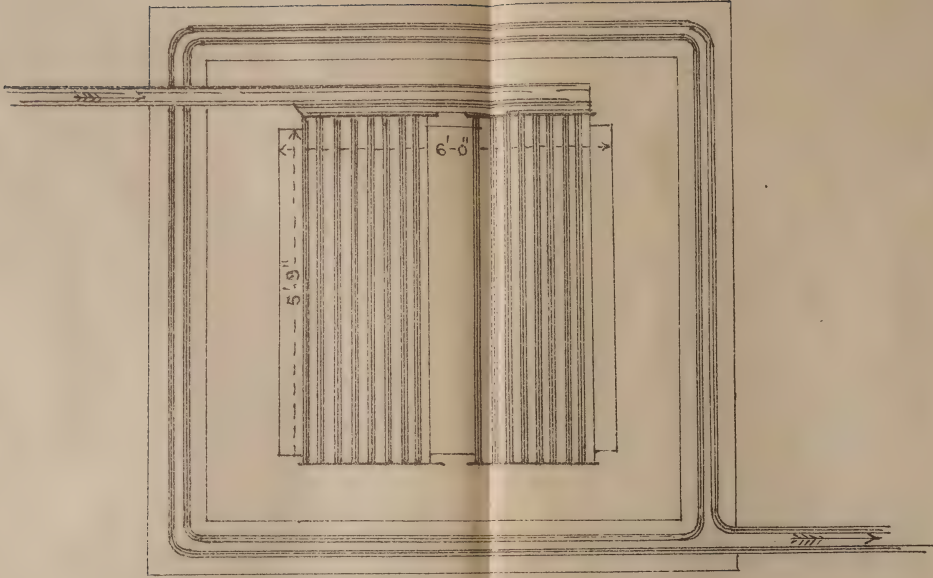
5



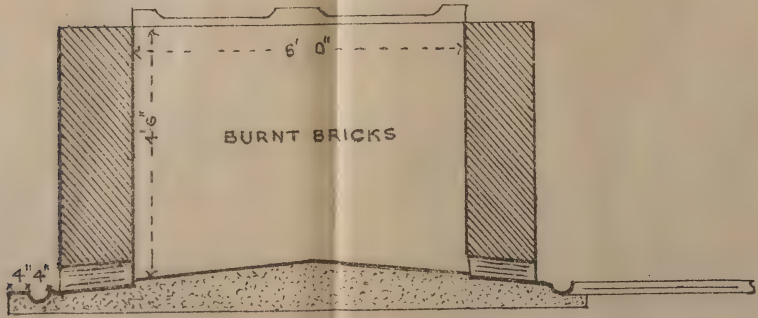
A

— 29 —

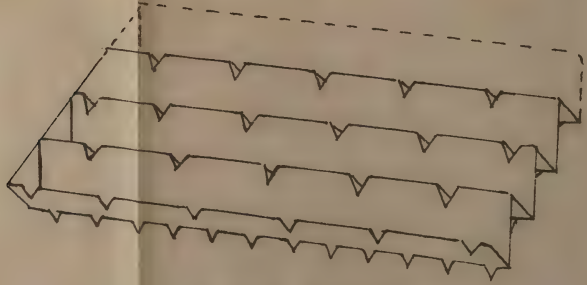
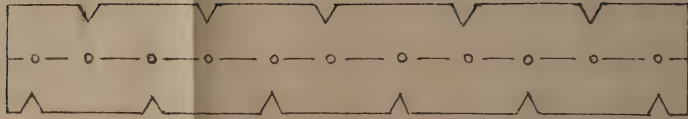
FILTER WITH STODDART'S PATENT DISTRIBUTORS



PLAN



SECTION



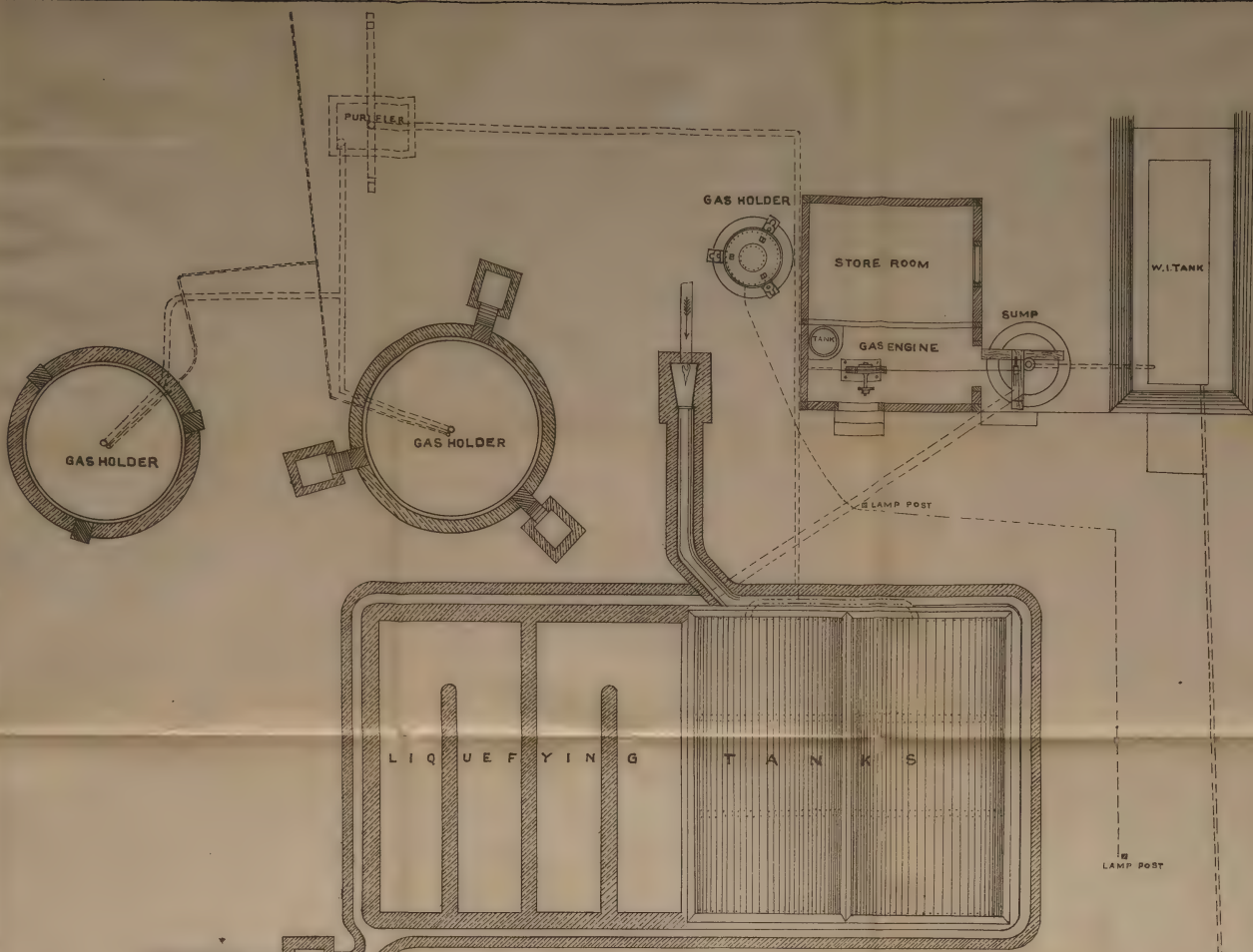
DISTRIBUTOR.

— SCALE 3 FEET TO AN INCH —

BIOLOGICAL INSTALLATION AT MATOONGA

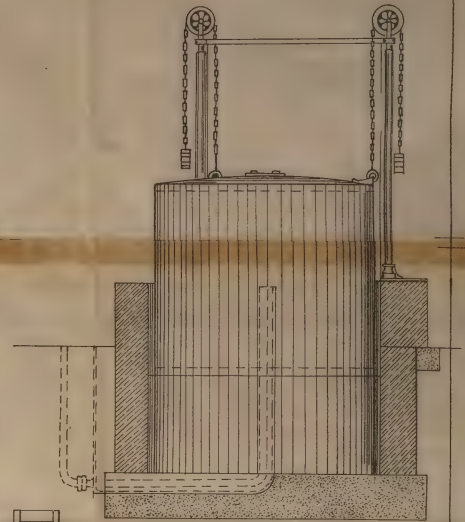
INCLUDING THE LIQUEFYING GASWORKS

SCALE 6 FEET TO 1 INCH

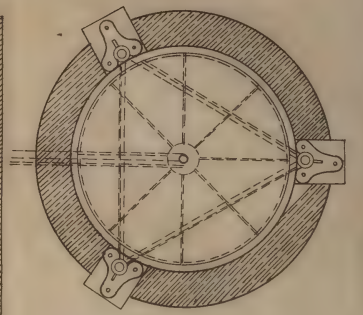


GAS-HOLDER

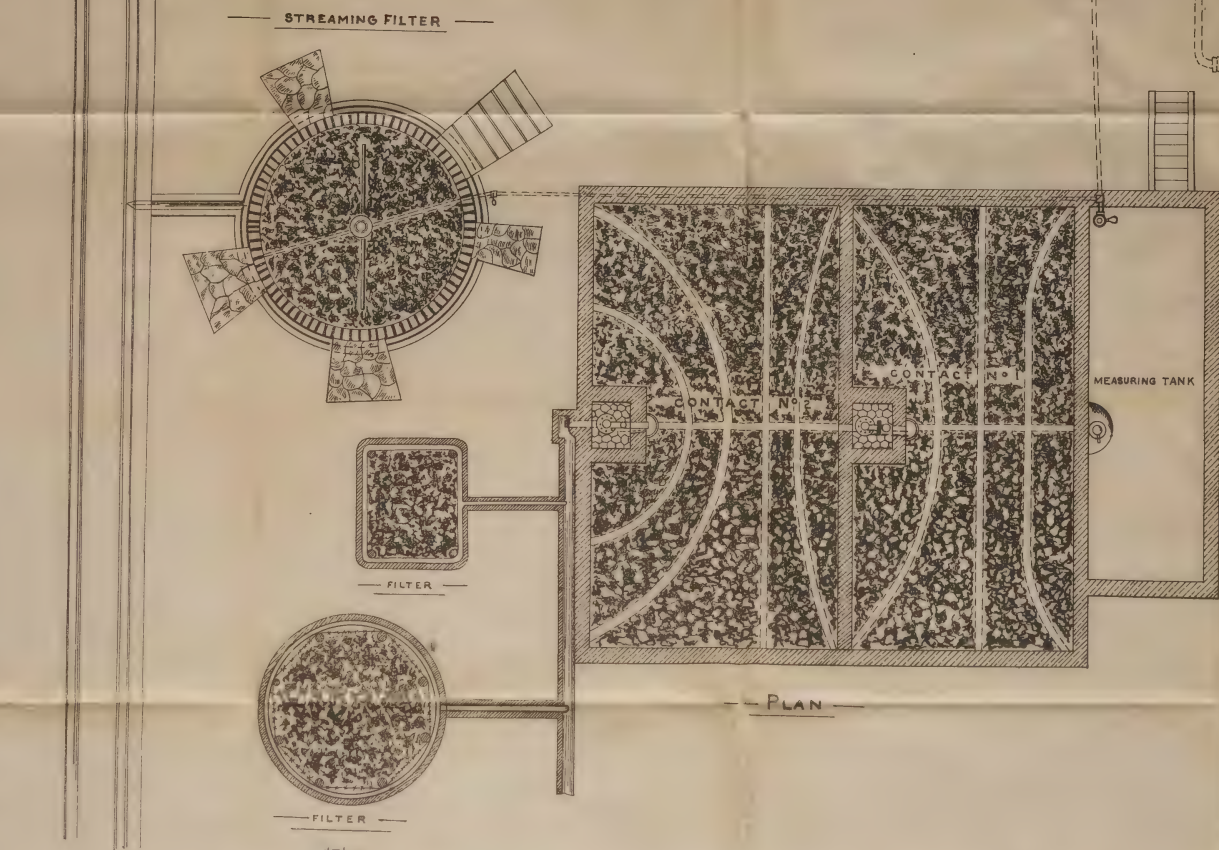
SCALE 1/2 INCH TO 1 FOOT



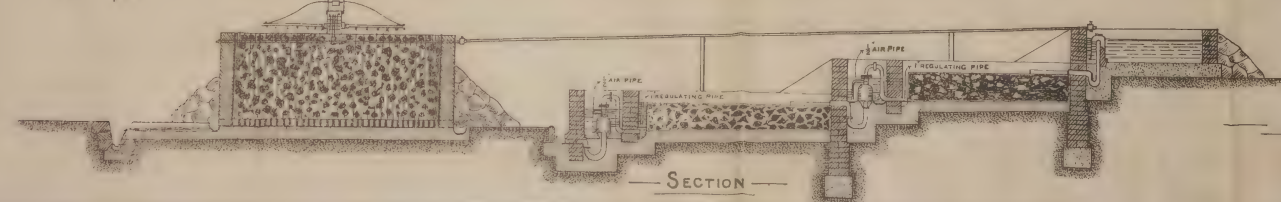
SECTION



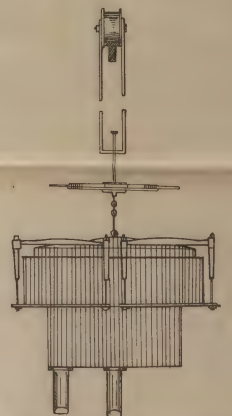
PLAN



PLAN



SECTION



LIFTING APPARATUS FOR PURIFIER
END ELEVATION



ECONOMICAL CONSTRUCTION OF FILTER.

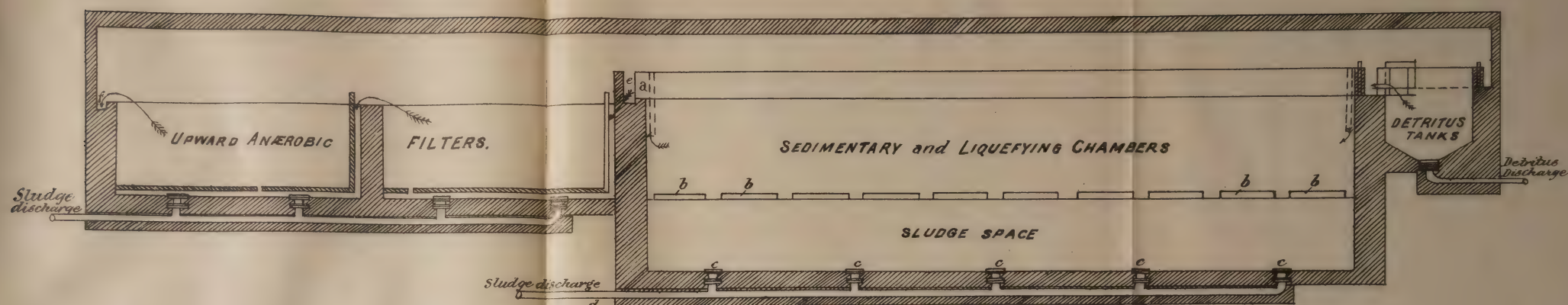


ELEVATION.

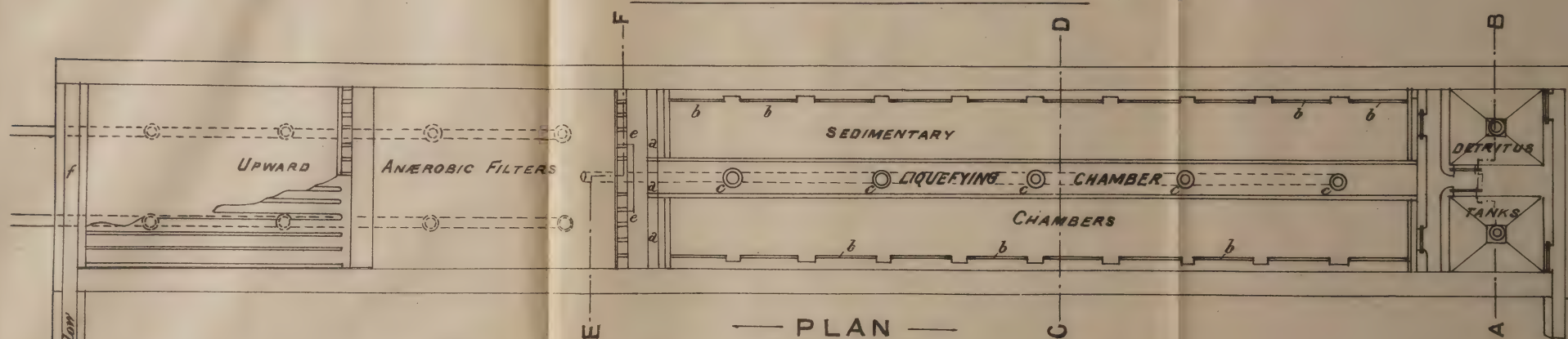
ECONOMICAL CONSTRUCTION



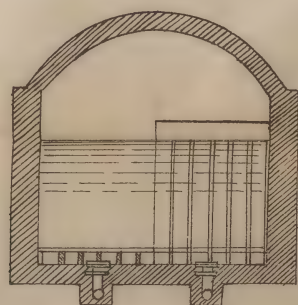
— HYDROLYTIC TANK. —



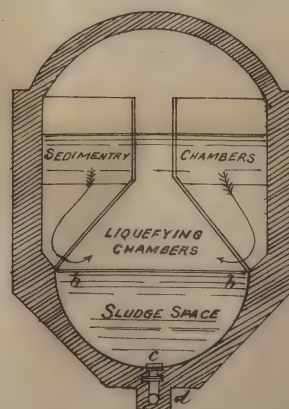
— LONGITUDINAL SECTION —



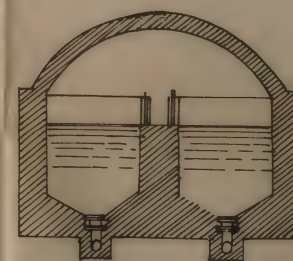
— PLAN —



— TRANSVERSE SECTION E.F. —
through Upward Anaerobic Filters

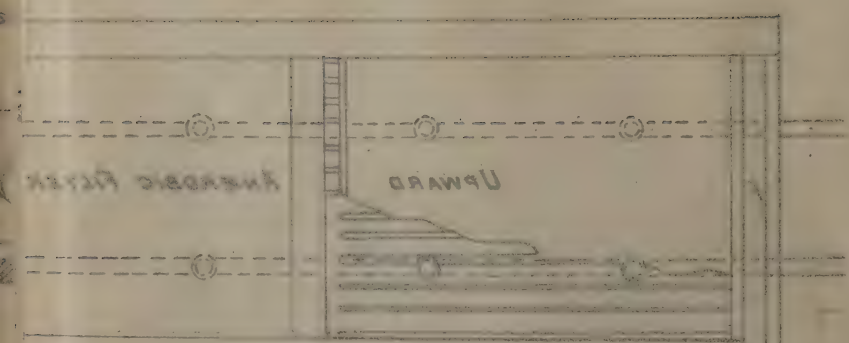
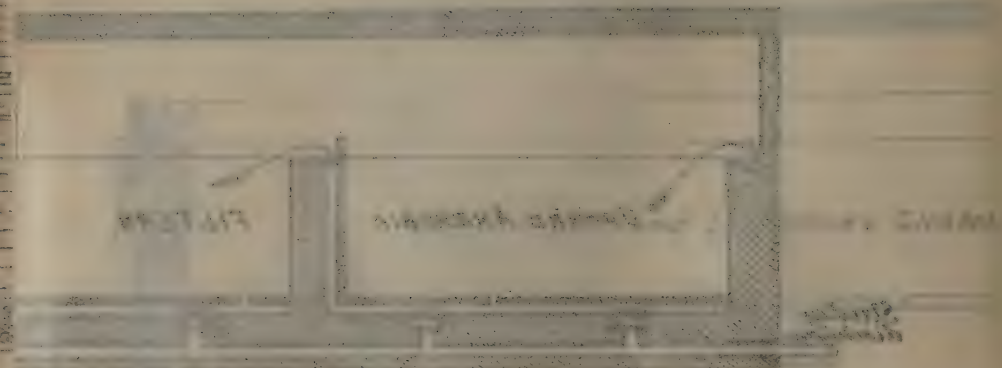


— TRANSVERSE SECTION C.D. —
through Sedimentary and
Liquefying Chambers Sludge Space



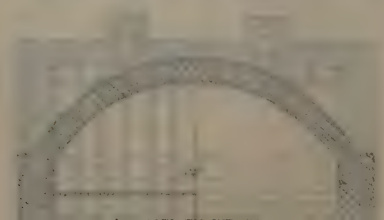
— TRANSVERSE SECTION A.B. —
through Detritus Tanks

HYDROLYTIC TANK.



Transverse Section of the Tank

TRANSVERSE SECTION E.F.



DIFFERENT DESIGNS FOR STORM WATER DRAINS.

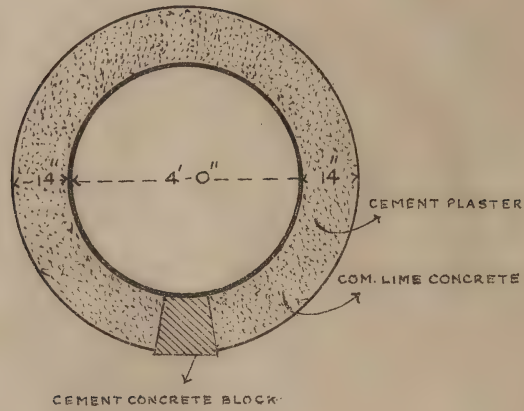
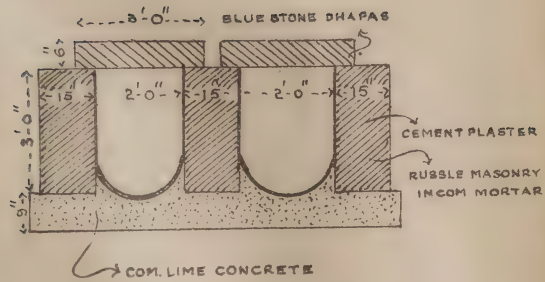
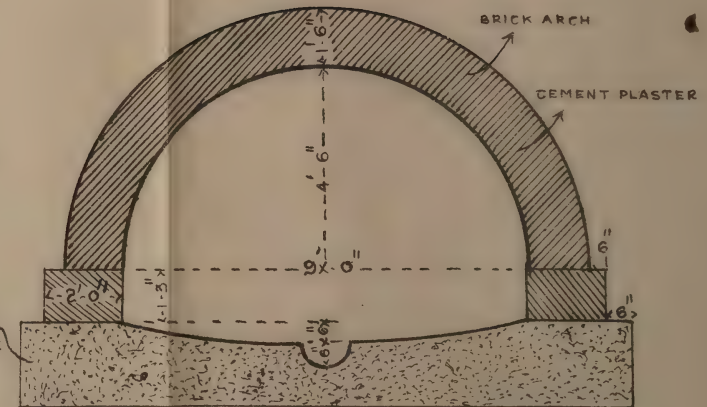
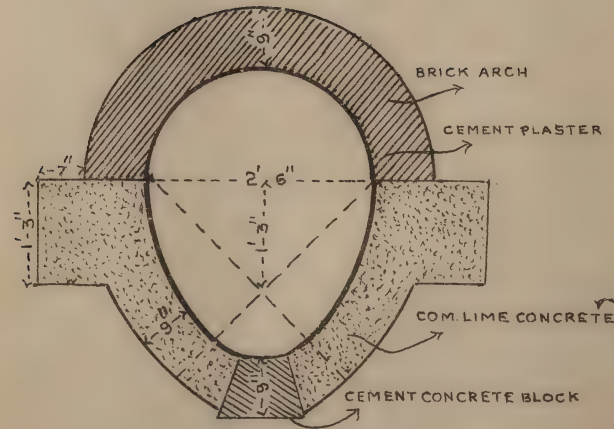
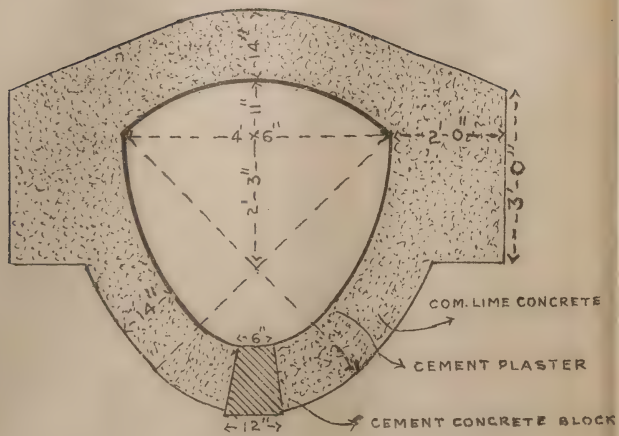
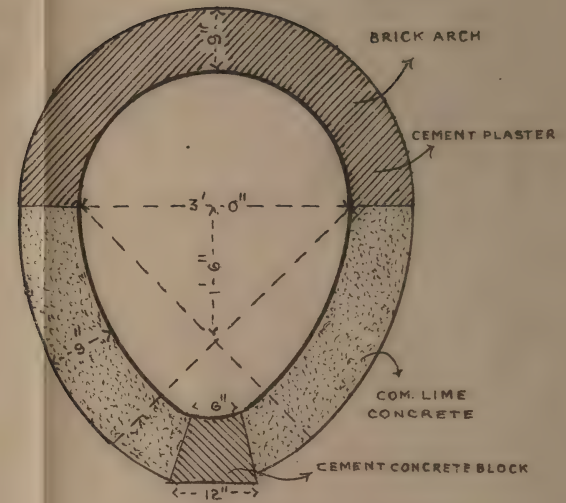
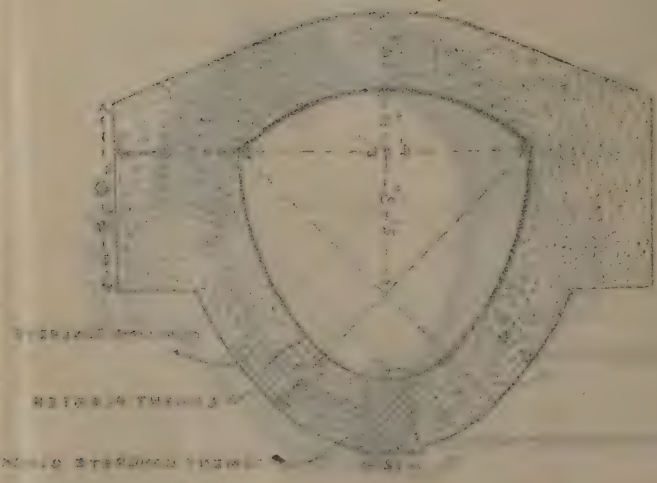
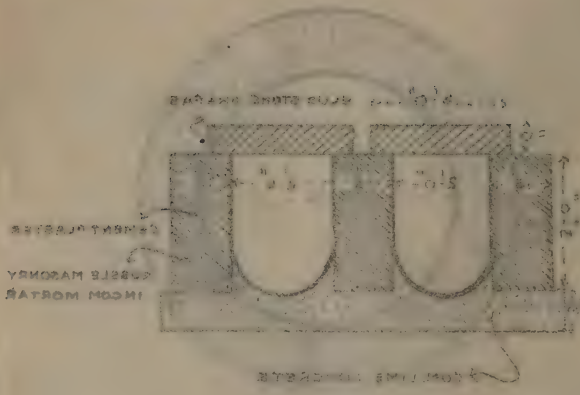


PLATE 58.



DIFFERENT TYPES OF STORM WATER DRAINAGE



—Site Plan—
—of—
—Cairo Drainage Works.—

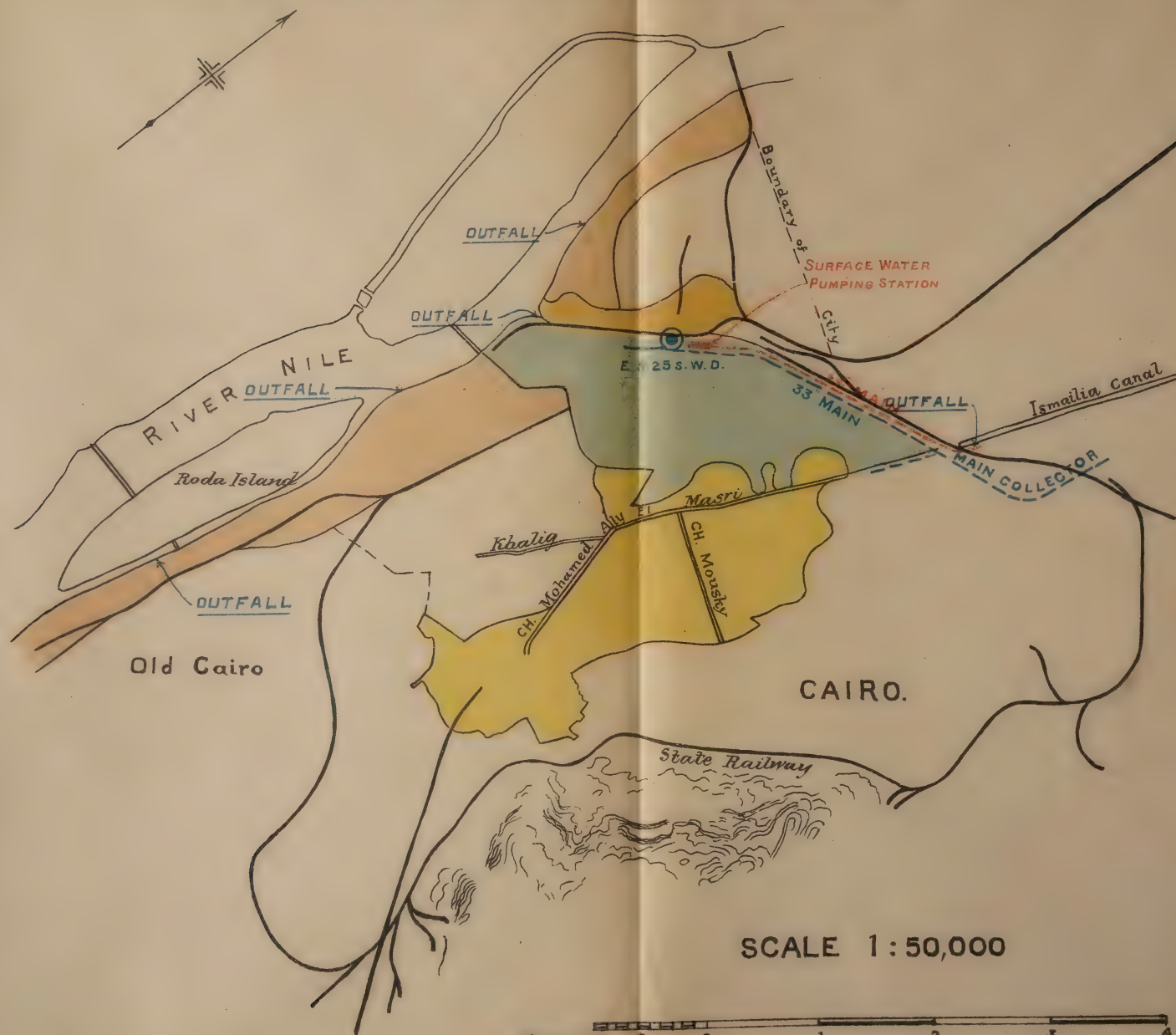




Scale: 1 mile = 1.6 km

— CITY OF CAIRO —
— SURFACE WATER DRAINAGE SCHEME —

PLATE 60.



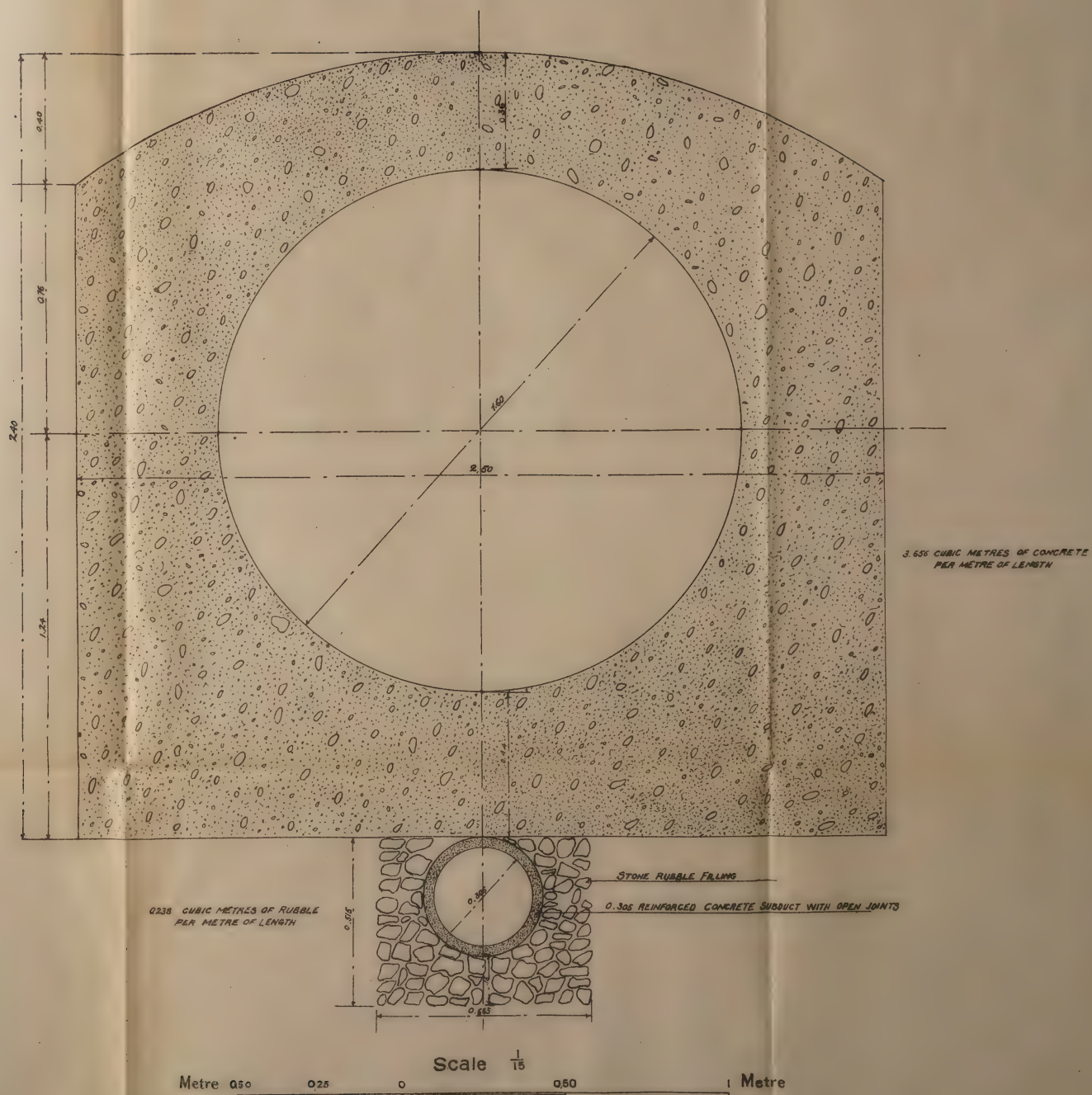
Metres 1000 500 0 1 2 3 4 Kilometres

— CITY OF CA —

SURFACE WATER DRAINAGE

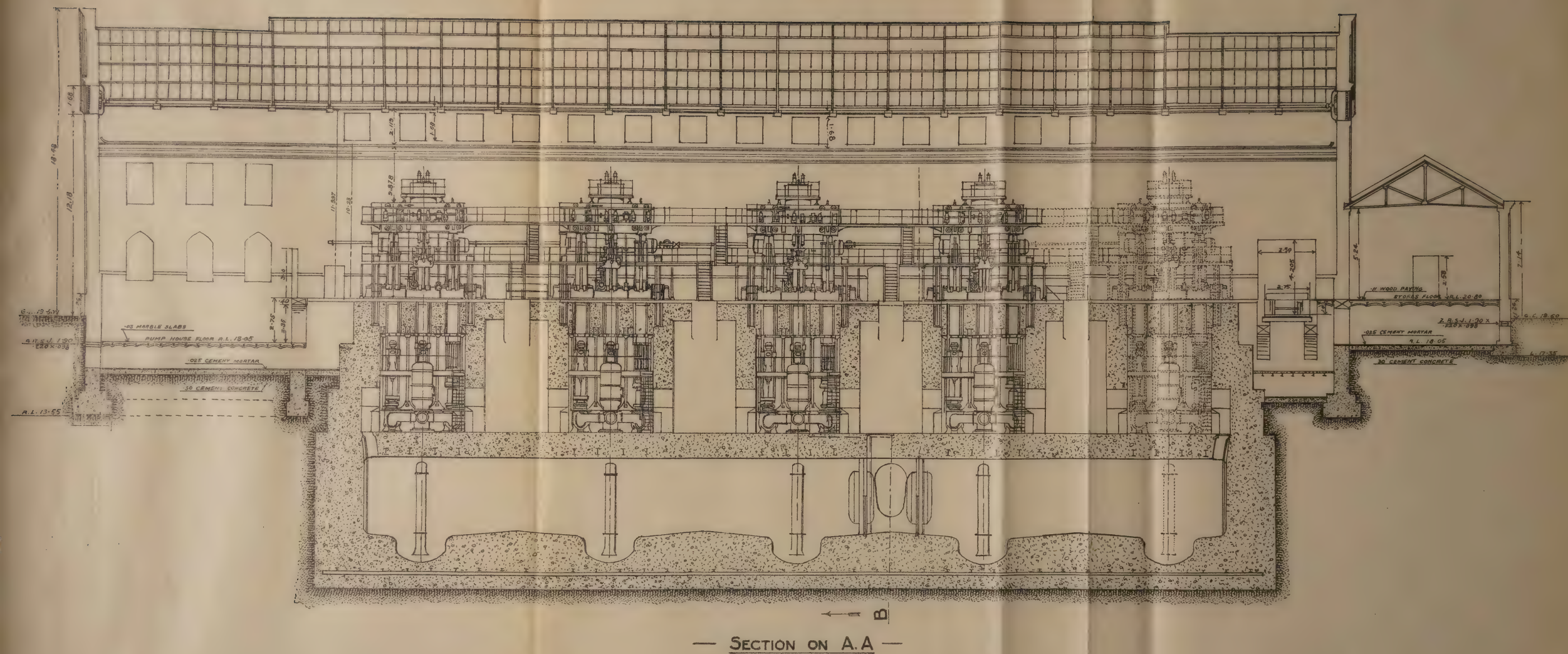


SECTION OF MAIN COLLECTOR IN CONCRETE



REPORT OF HENRY COLLECTOR
ON CONCRETE





ARRANGEMENT OF MACHINERY AT PUMPING STATION

SCALE 1:250.

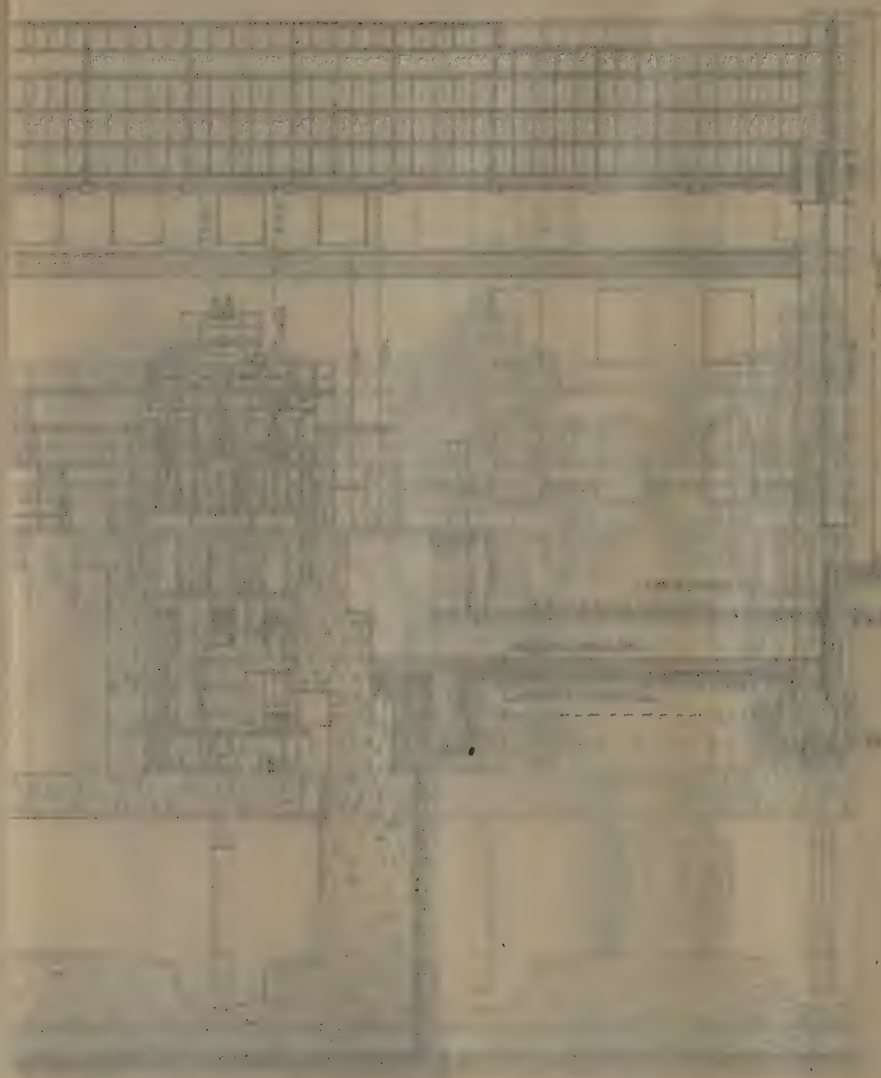
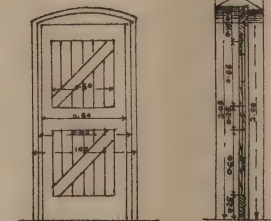
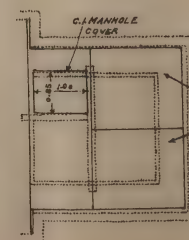


PLATE 63.

SECTION C D



DETAIL OF DOOR
SCALE 1:25



SECTION A-B

Scale $\frac{1}{125}$

Metre 1 050 0 1 2 3 4 5 6 7 8 9 10 11 12 Metres

RISING MAIN VENTURI METER AND RELIEF CHAMBERS

TYPE NO 2

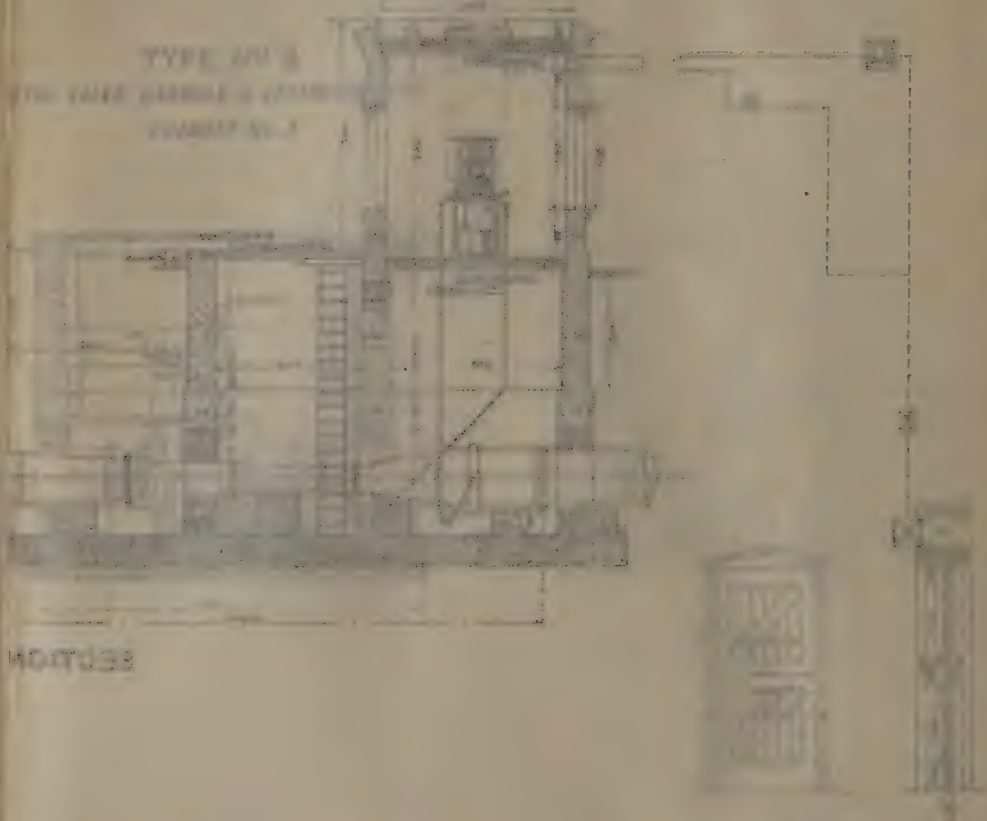
VENTURI METER CHAMBER

CHAMBER NO 2

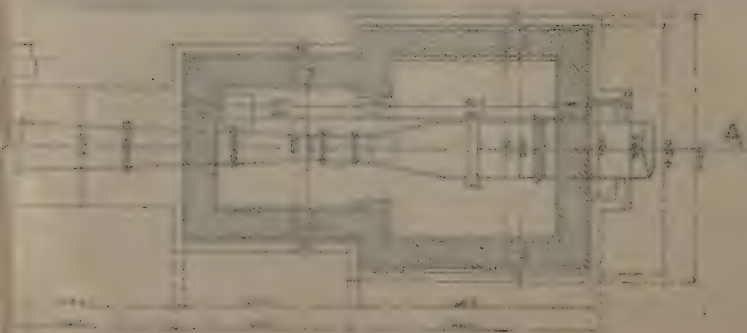
TYPE NO 1

VENTURI METER CHAMBER

CHAMBER NO 1



SECTION

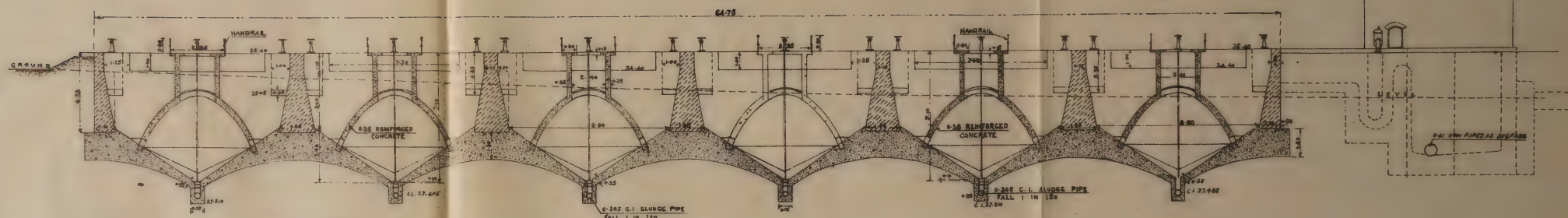


SEWAGE DISPOSAL WORKS AT GEBEL EL ASFAR (KHANKA)

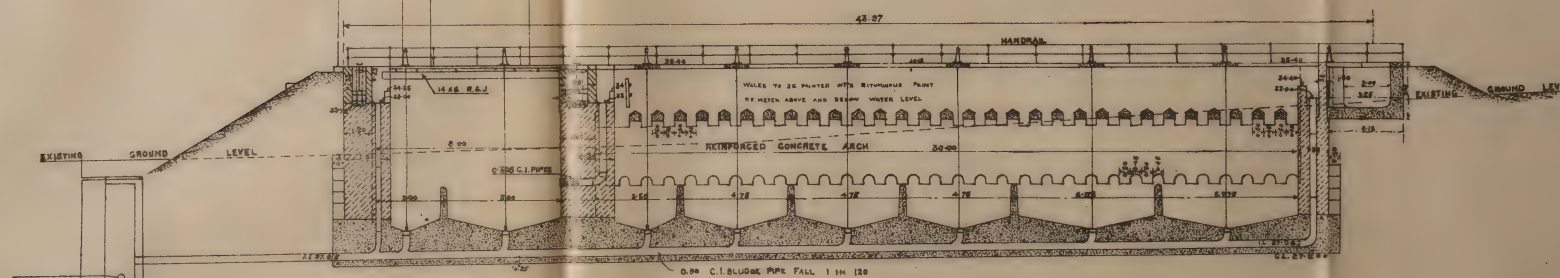
SECTIONS OF HYDROLYTIC TANKS

NOTE.

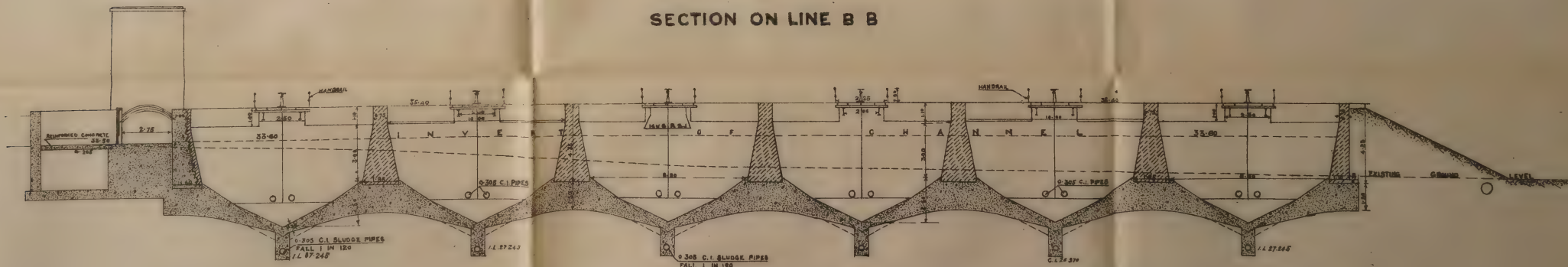
MASONRY AND CONCRETE WALLS
TO BE PAINTED WITH BITUMINOUS
PAINT 0.5 METRE ABOVE AND
BELOW WATER LEVEL



SECTION ON LINE A A



SECTION ON LINE B B

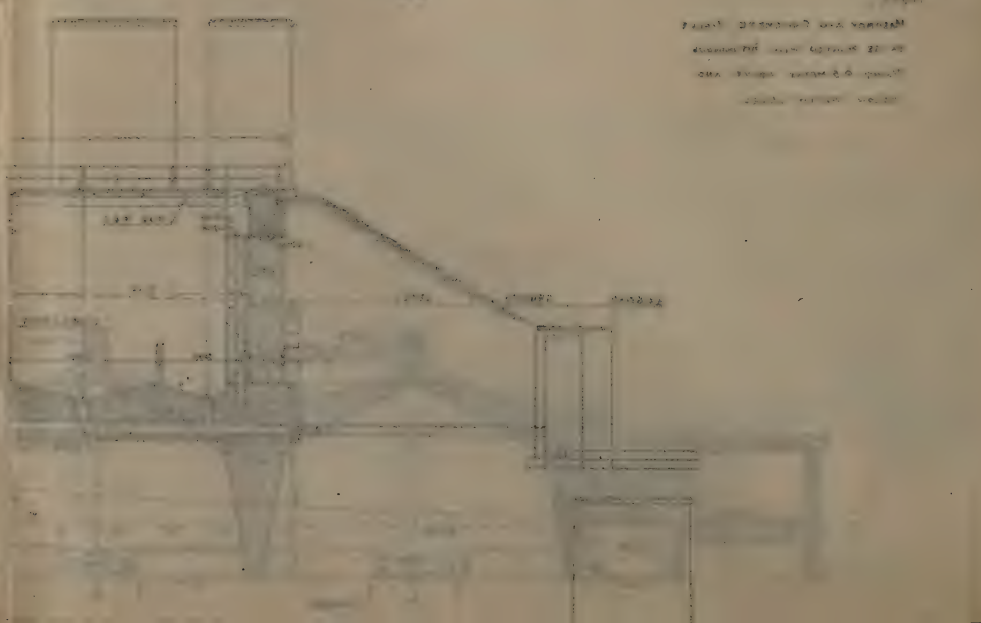
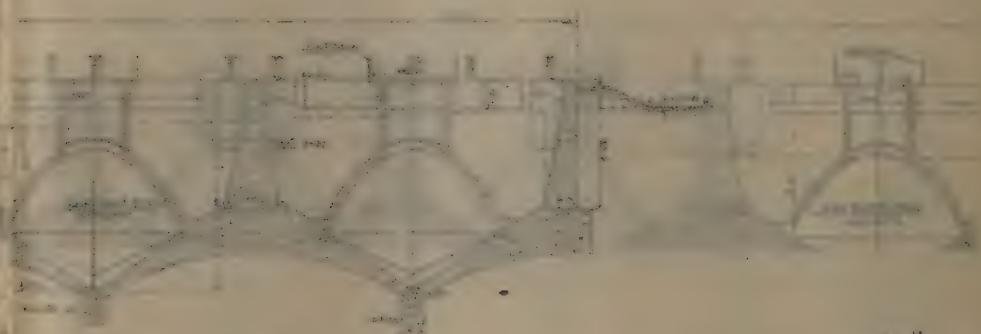


SECTION ON LINE C C

Scale $\frac{1}{250}$

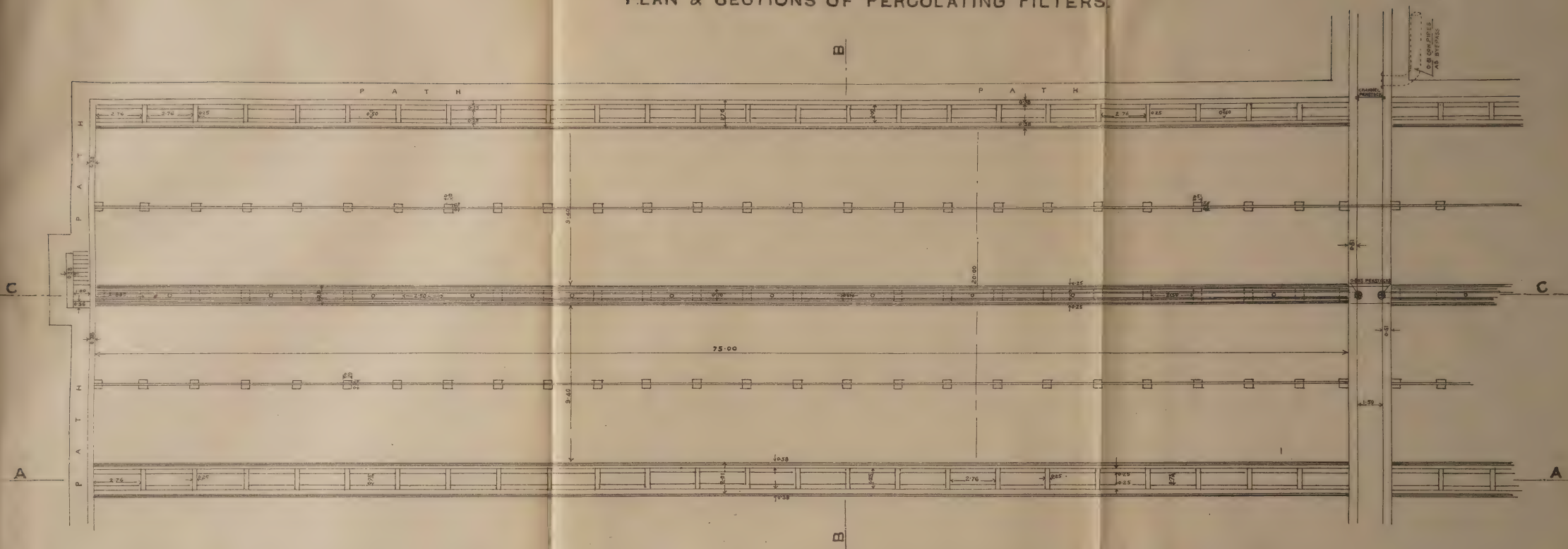
Metre 1 2 3 4 5 6 7 8 9 10 20 Metres

32 ORIGINAL WORKS AT GEBEL EL ASFI METHODS OF HYDROLYTIC TANKS

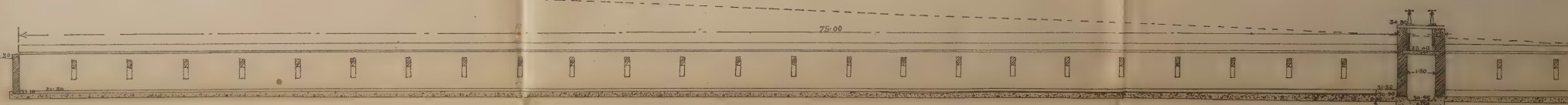


SEWAGE DISPOSAL WORKS AT KHANKA

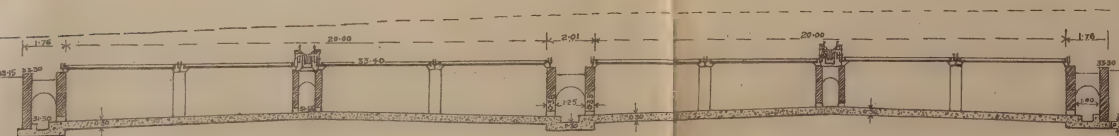
PLAN & SECTIONS OF PERCOLATING FILTERS.



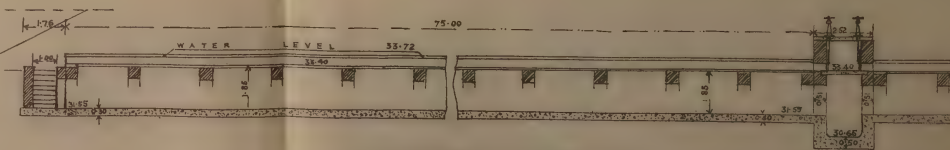
PLAN OF PERCOLATING FILTERS.



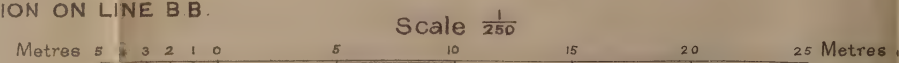
SECTION ON LINE A A



SECTION ON LINE B B.



SECTION ON LINE C C



SEWAGE DISPOSAL WORKS AT KHANH

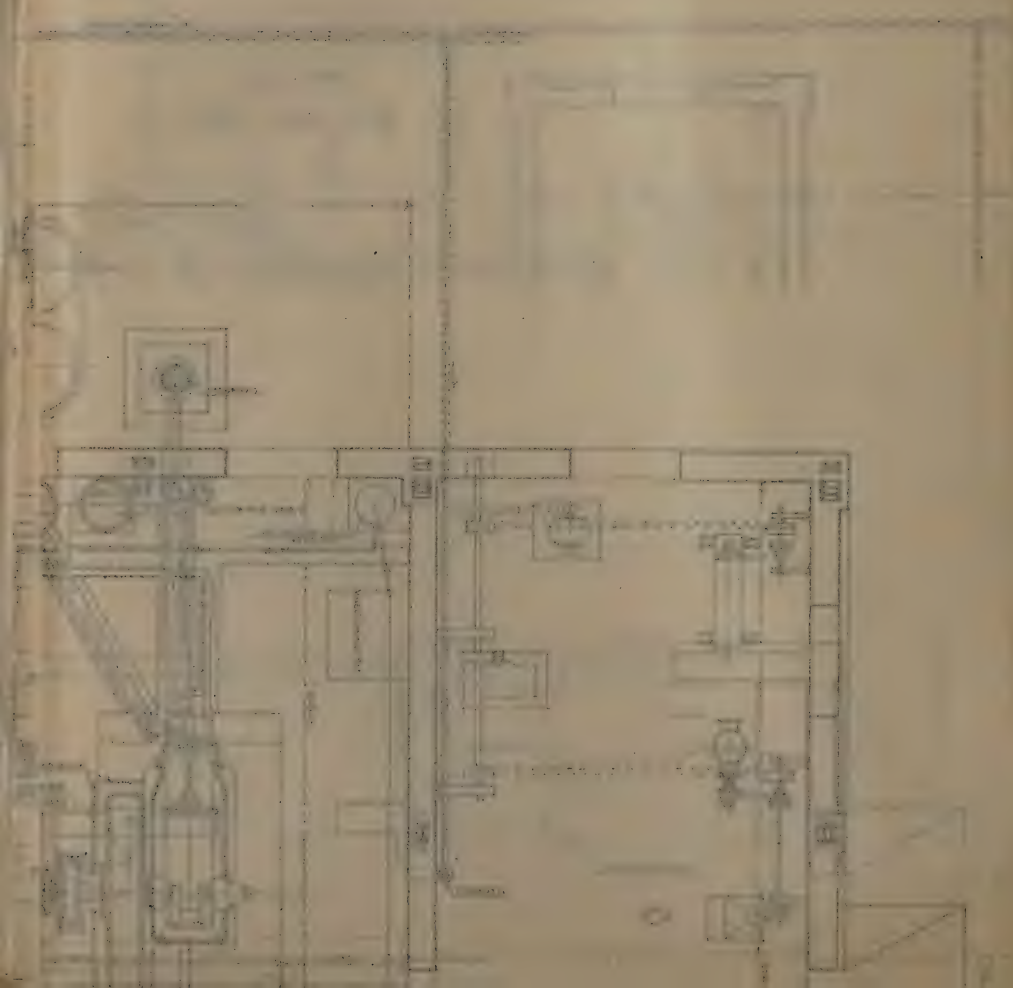
N PLAN & SECTION RECYCLING FILTER





PLAN OF AMERICAN POWER STATION SHOWING ARRANGEMENT OF MACHINERY.

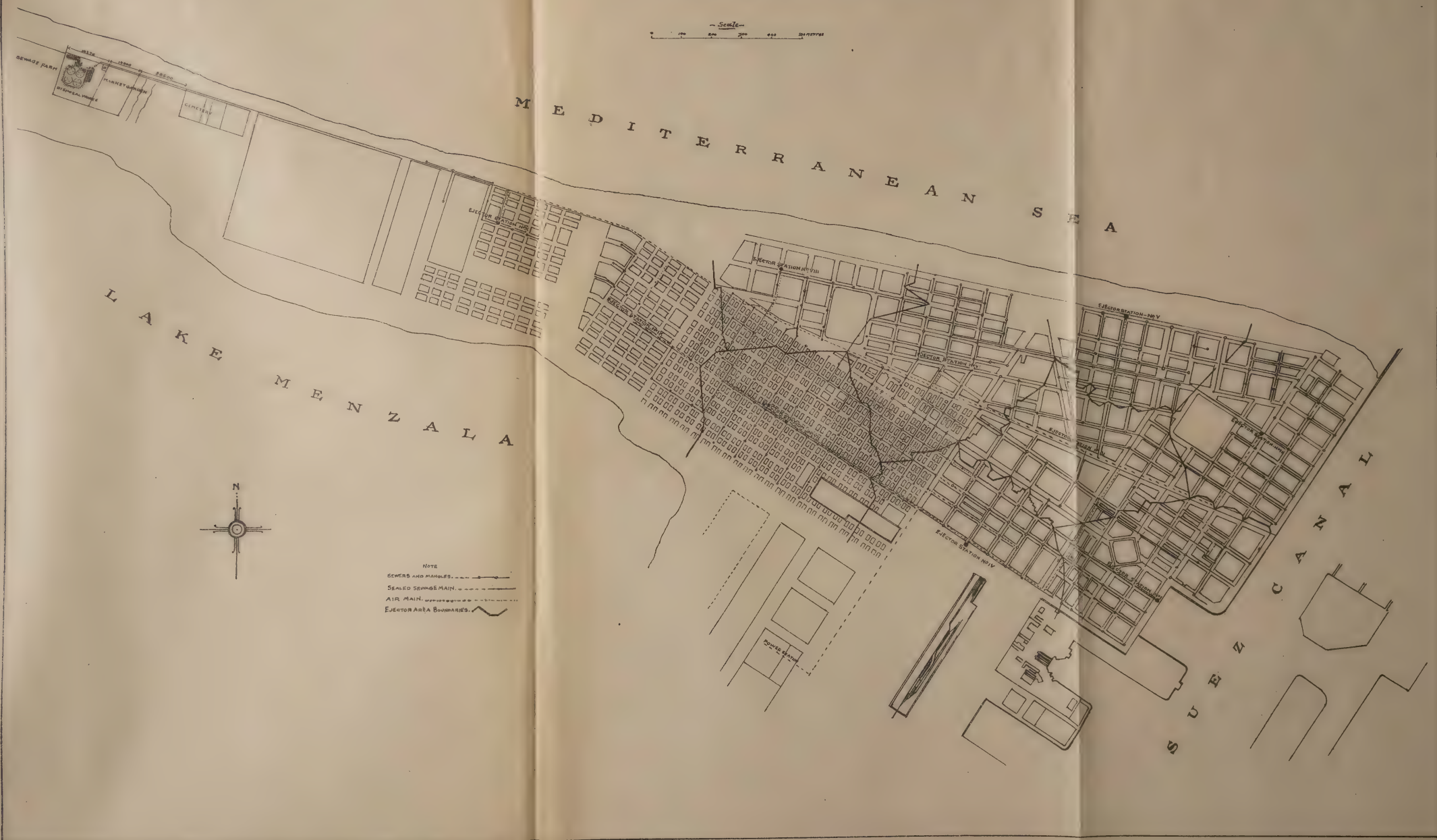
Scale 1:100







— DRAINAGE OF PORT SAID —



— DRAINAGE OF PORT SAID —

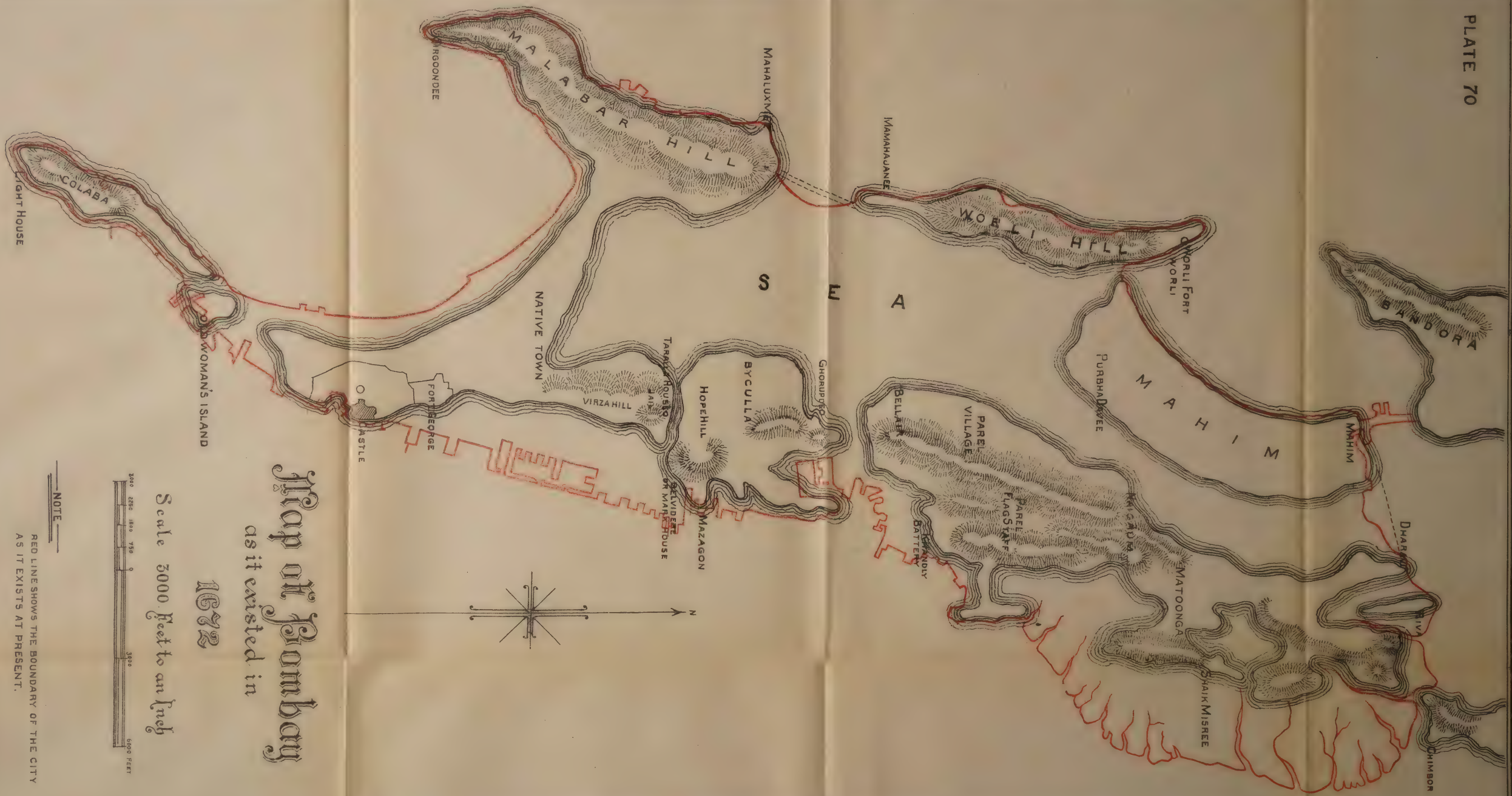




DRAINAGE OF MANSOURAH



NOTES	
1	ALL STREETS SHOWN ARE 8' WIDE
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3	ALL STREETS SHOWN ARE 8' WIDE
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48	ALL STREETS SHOWN ARE 8' WIDE
49	ALL STREETS SHOWN ARE 8' WIDE
50	ALL STREETS SHOWN ARE 8' WIDE



Map of Bombay as it existed in

1672

Scale 3000 Feet to an Inch



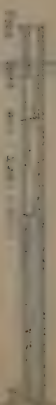
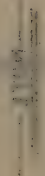
NOTE

RED LINE SHOWS THE BOUNDARY OF THE CITY
AS IT EXISTS AT PRESENT.

Atoll



AS IT EXISTS AT PRESENT



Scale of Fathoms

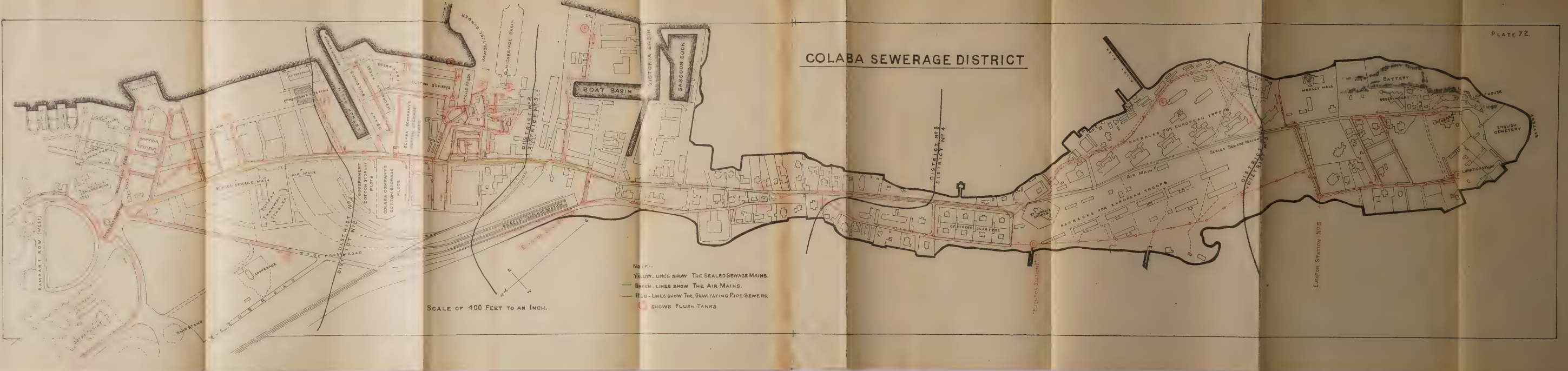
100

depth

Map of the



COLABA SEWERAGE DISTRICT





THE CHINCHPOKLI & THE PAREL SECTIONAL DISTRICTS

PLATE 73.

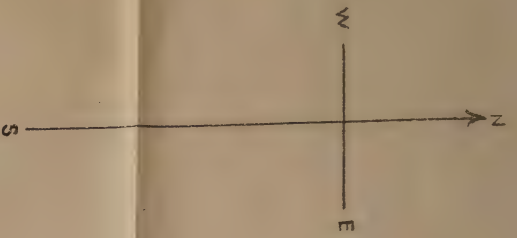
SCALE 600 FEET TO AN INCH



THE CHINCHPOK

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MALABAR HILL SECTIONAL DISTRICT

SCALE OF 1200 FEET TO 1 INCH

NOTE

- LINE SHOWS THE PIPE SEWER
- " — " — THE SEALED-SEWAGE MAIN
- " — " — THE AIR MAIN

MALABAR HILL SECTIONAL DISTRICT-

SCALE OF 1500 FEET TO 1 INCH

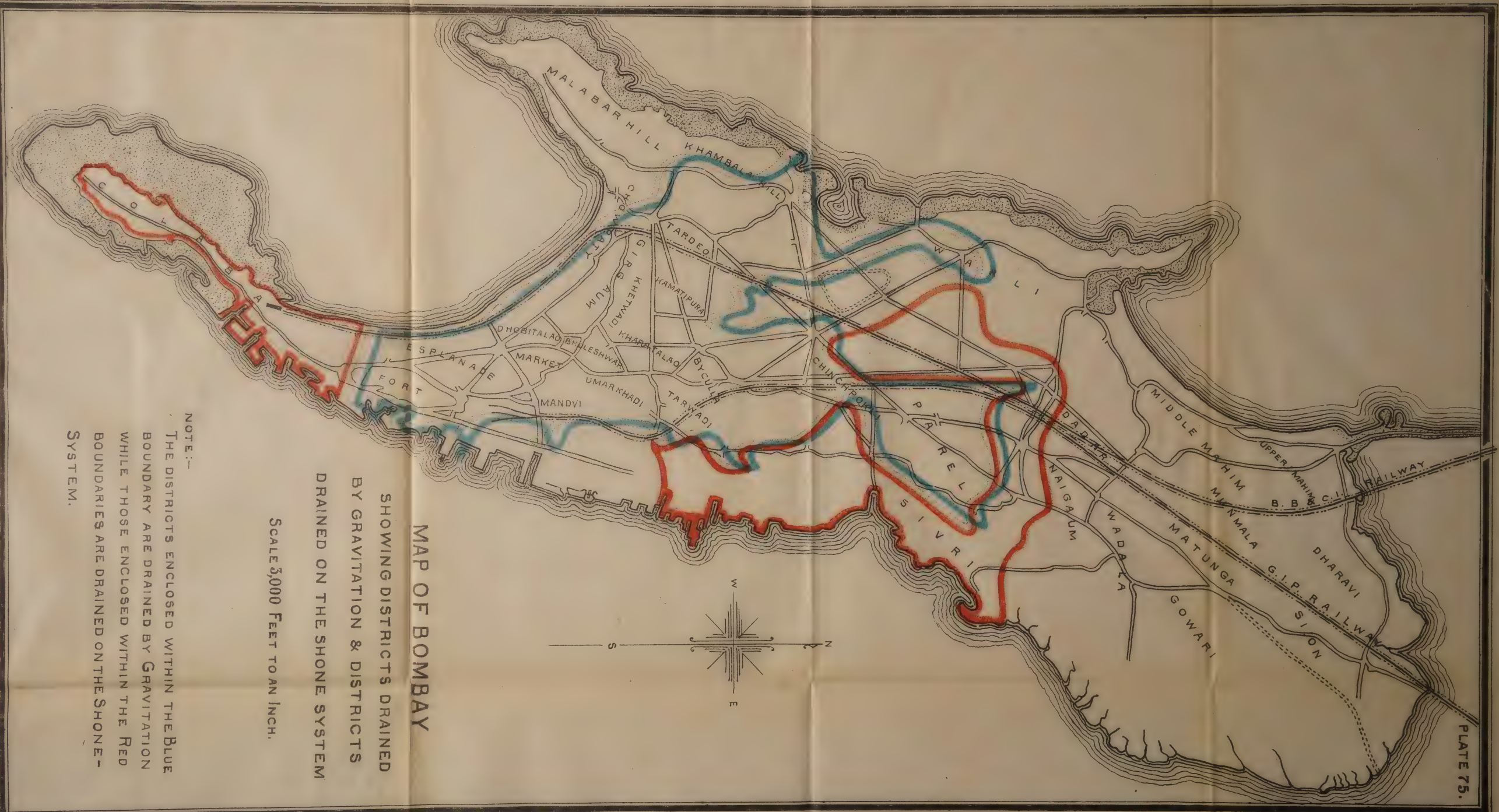
NOTE-

THIS SHOWS THE PIPE SEWER

ON THE SEALED SEWAGE MAIN

ON THE AIR MAIN





MAP OF BOMBAY

SHOWING DISTRICTS DRAINED
BY GRAVITATION & DISTRICTS
DRAINED ON THE SHONE SYSTEM

SCALE 3,000 FEET TO AN INCH.

NOTE:—

THE DISTRICTS ENCLOSED WITHIN THE BLUE
BOUNDARY ARE DRAINED BY GRAVITATION
WHILE THOSE ENCLOSED WITHIN THE RED
BOUNDARIES ARE DRAINED ON THE SHONE-
SYSTEM.

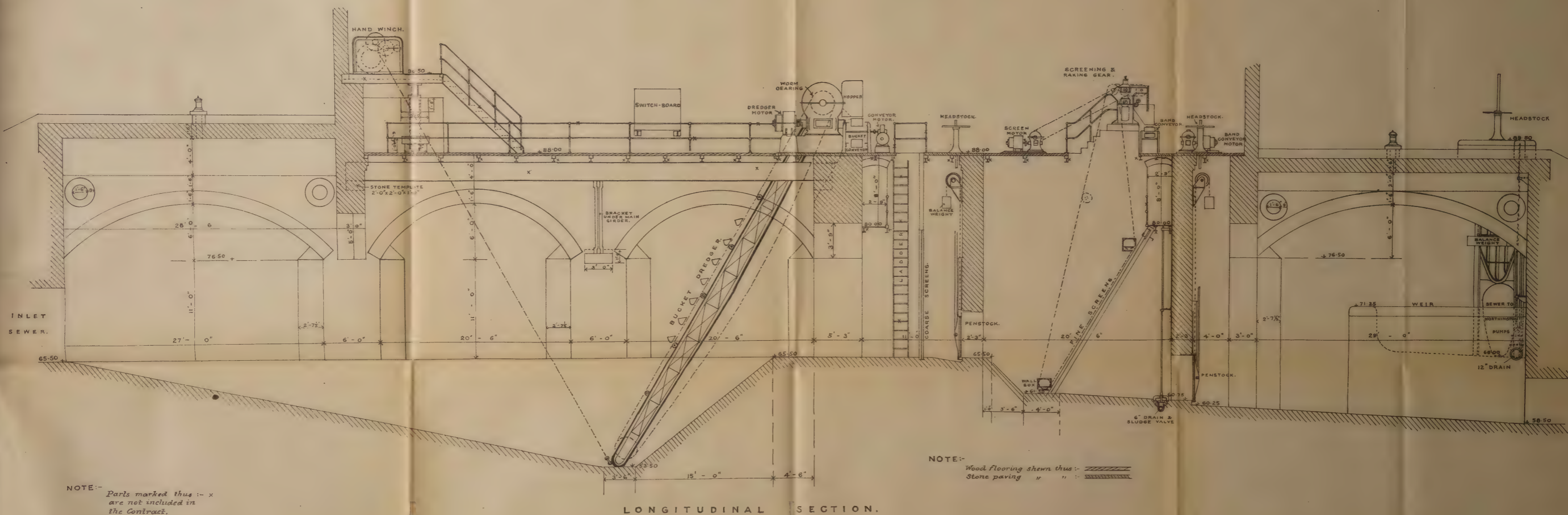


SYSTEM.

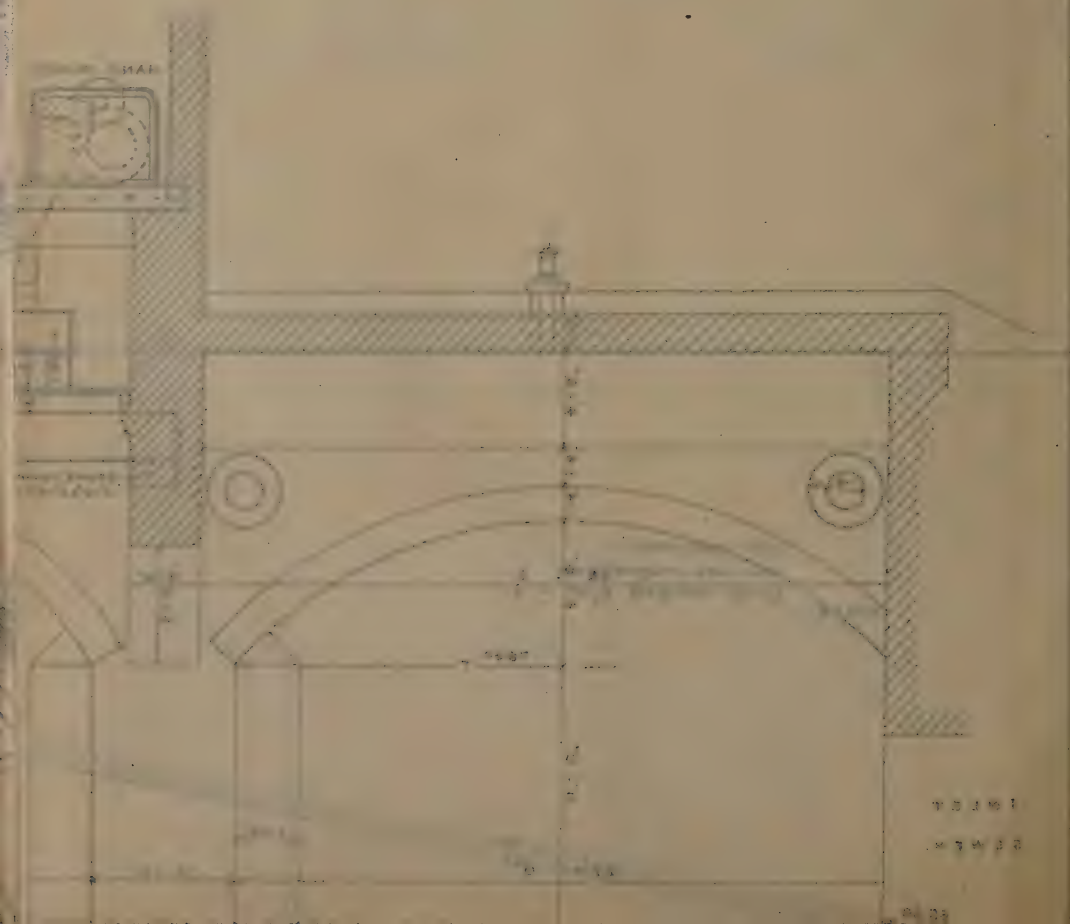
BOUNDARIES ARE DRAINED ON THE
WHILE THOSE ENCLOSED WITHIN
BOUNDARY ARE DRAINED BY GR
THE DISTRICTS ENCLOSED WITHIN

Scale 1000 Feet to an

DRAINED ON THE SNOW
BY GRAVITATION & RED
SHOWING DISTRICTS



LOVE GROVE RU DREDGING & SAIL



MAIN DRAINAGE SYSTEM

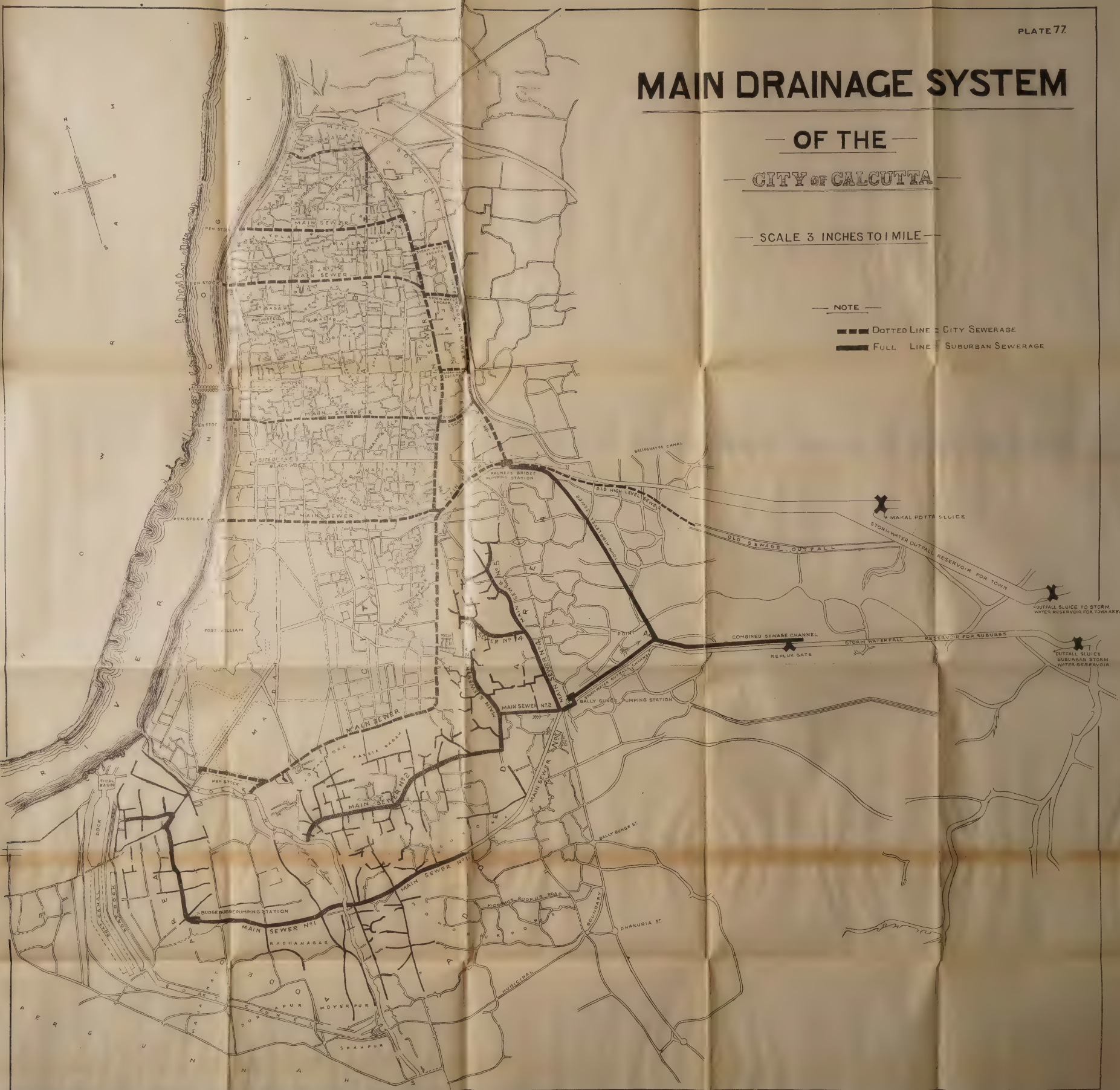
— OF THE —

— CITY OF CALCUTTA —

— SCALE 3 INCHES TO 1 MILE —

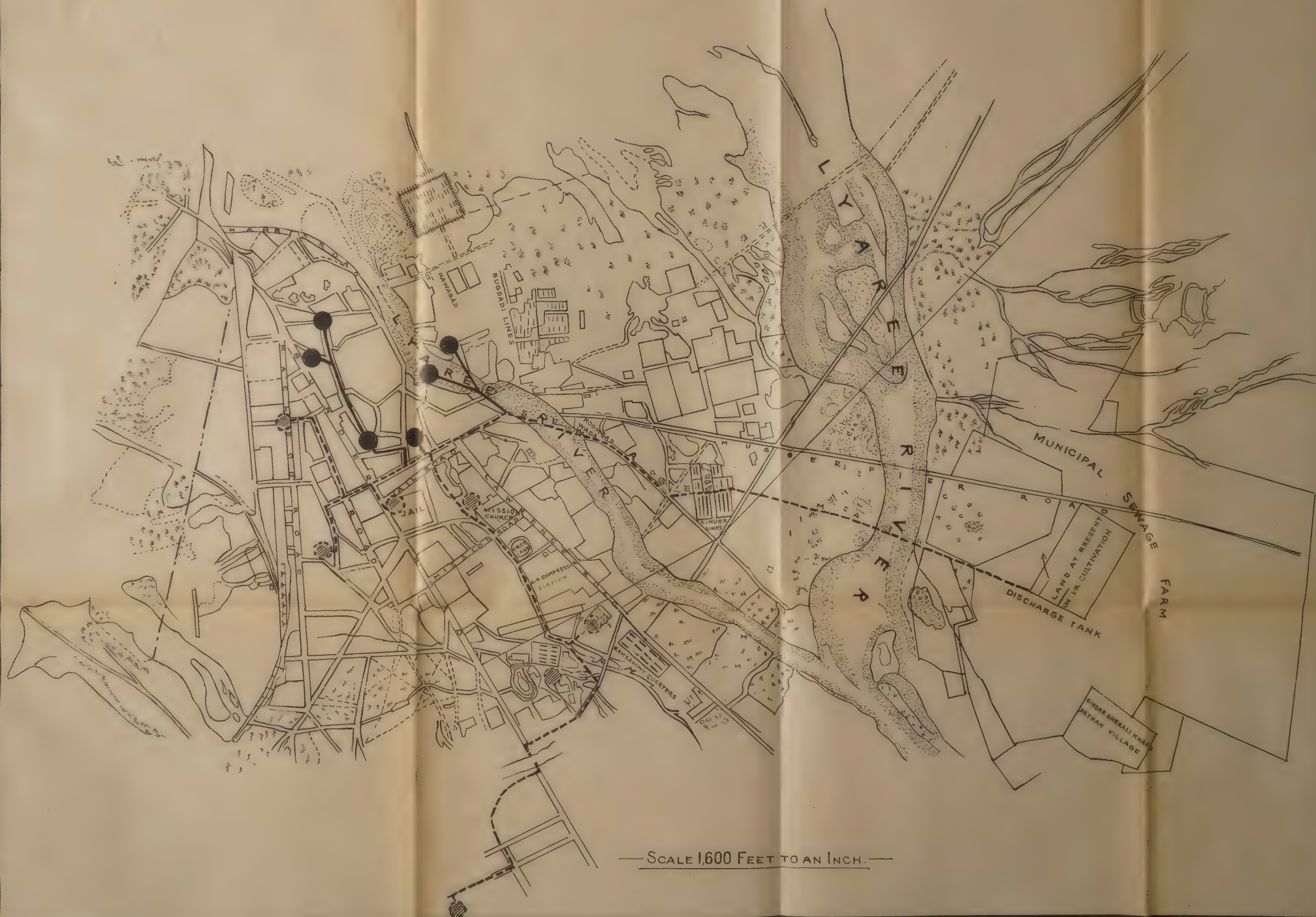
NOTE

- DOTTED LINE — CITY SEWERAGE
- FULL LINE — SUBURBAN SEWERAGE





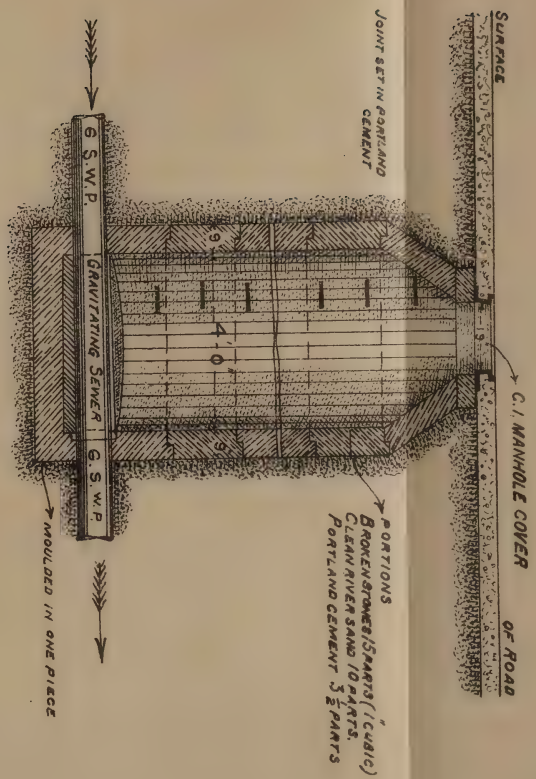
DRAINAGE SYSTEM OF KARACHI



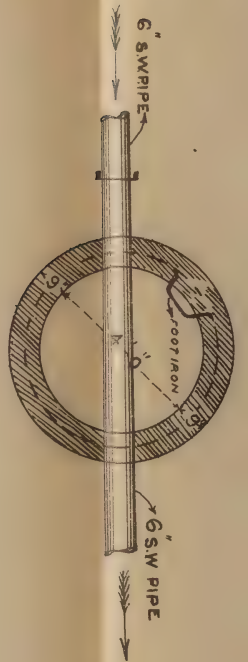
DRAINAGE SYSTEM



CONCRETE MANHOLES AS CONSTRUCTED IN KARACHI.



SECTION



PLAN

SCALE 4 FEET TO AN INCH

RECEIVED
JAN 10 1880
U.S. DEPT. OF AGRICULTURE
WASHINGTON



— SCALE 1/4 INCH TO 1 INCH —

SECTION

PLAN

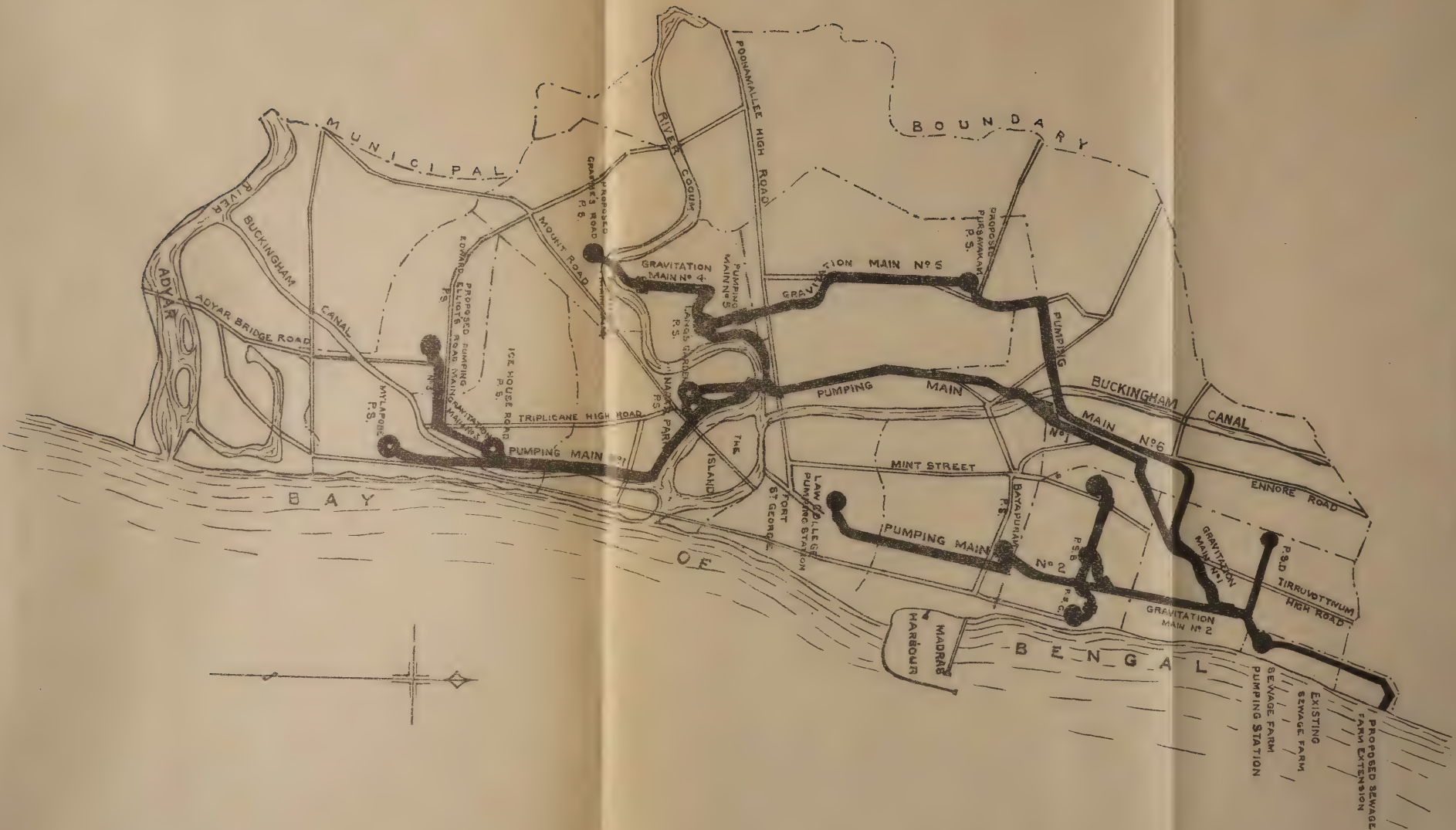


MAP OF MADRAS

SHOWING PROPOSED DRAINAGE AREAS, EXISTING AND
PROPOSED PUMPING STATIONS, PUMPING MAINS
GRAVITATION MAINS, ETC.

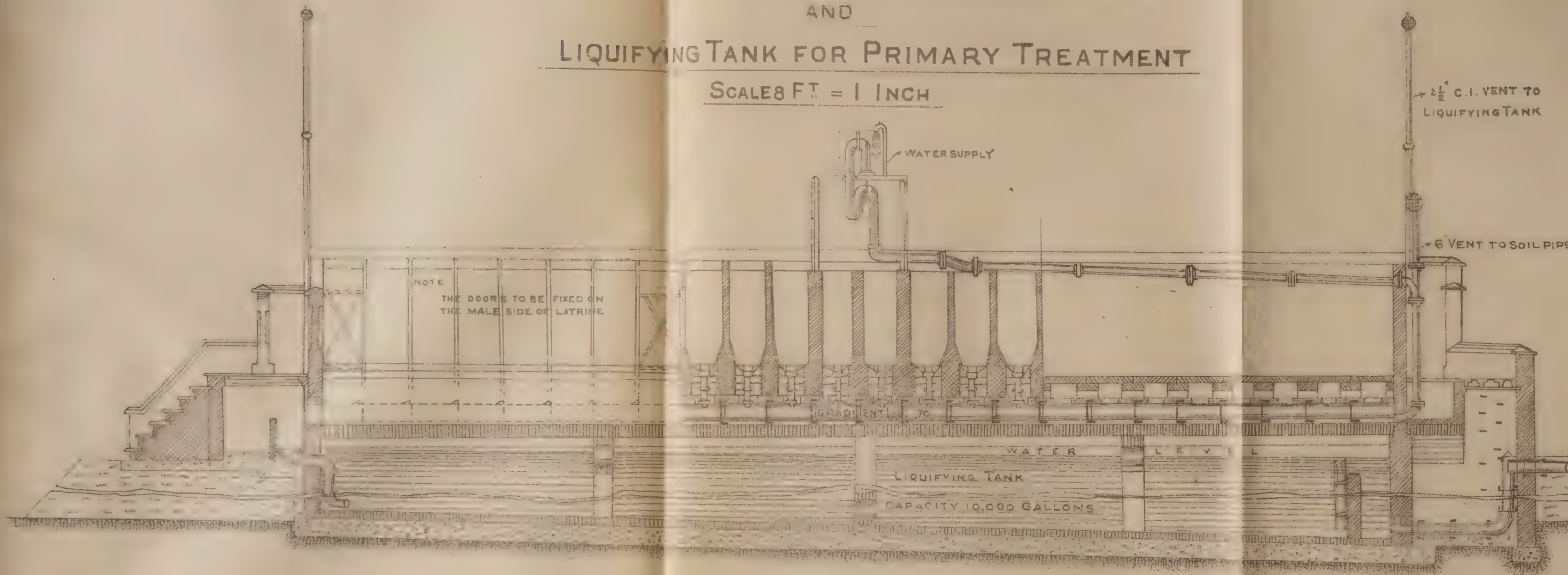
SCALE 1 INCH = 1 MILE

PLATE 80.

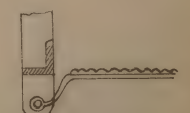
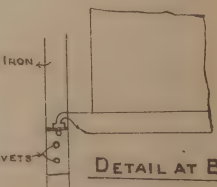
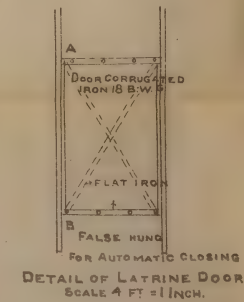
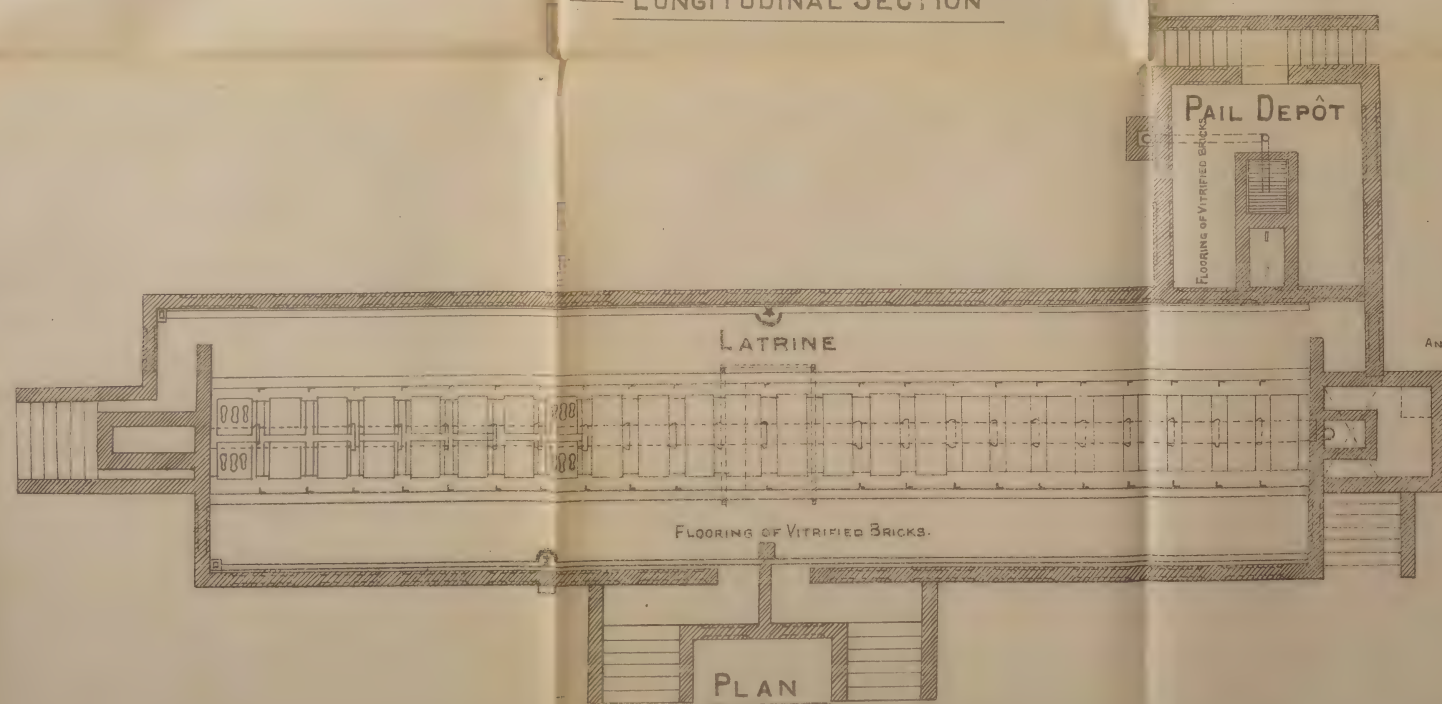




FORTY EIGHT SEATED
"MÖHALLA" LATRINE
 WITH PATENT SIMULTANEOUS AUTOMATIC FLUSHING ARRANGEMENT
 TOGETHER WITH
"MÖHALLA" PAIL DEPÔT
 FOR NIGHT SOIL FROM HOUSES IN VICINITY
 AND
 LIQUIFYING TANK FOR PRIMARY TREATMENT
 SCALES FT. = 1 INCH

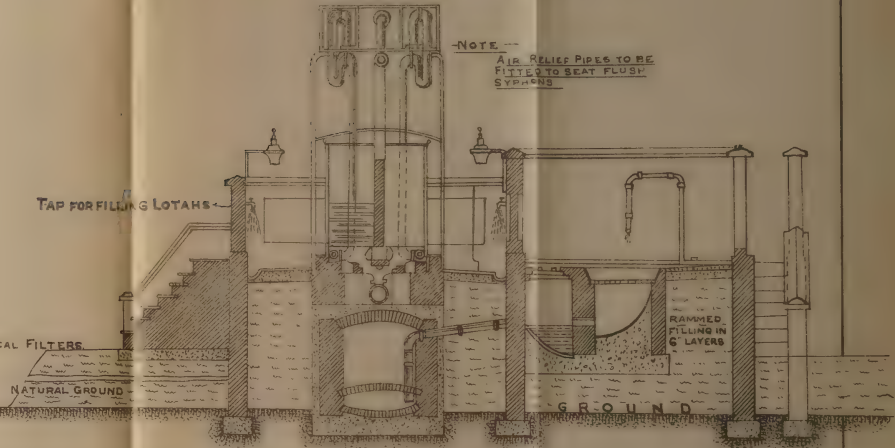


LONGITUDINAL SECTION

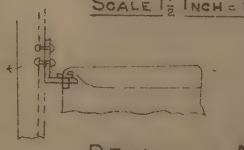
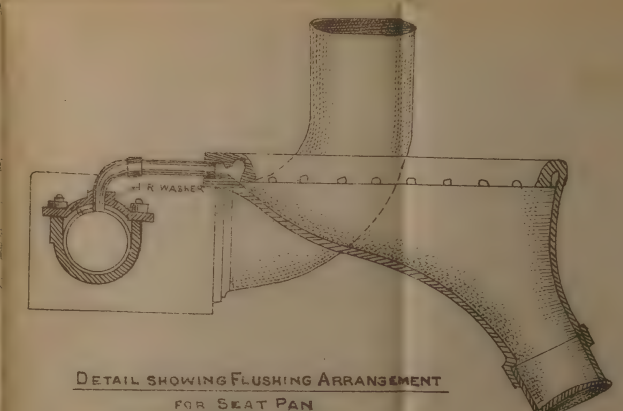


PLAN

TRIPLE CISTERN
 CAPACITY 103 GALLONS SEAT PAN FLUSHING
 DISCHARGES EVERY 5 MIN.
 SOIL PIPE FLUSHING
 DISCHARGES EVERY 30 MINUTES



CROSS SECTION



PLAN

FORTY EIGHT SEATED

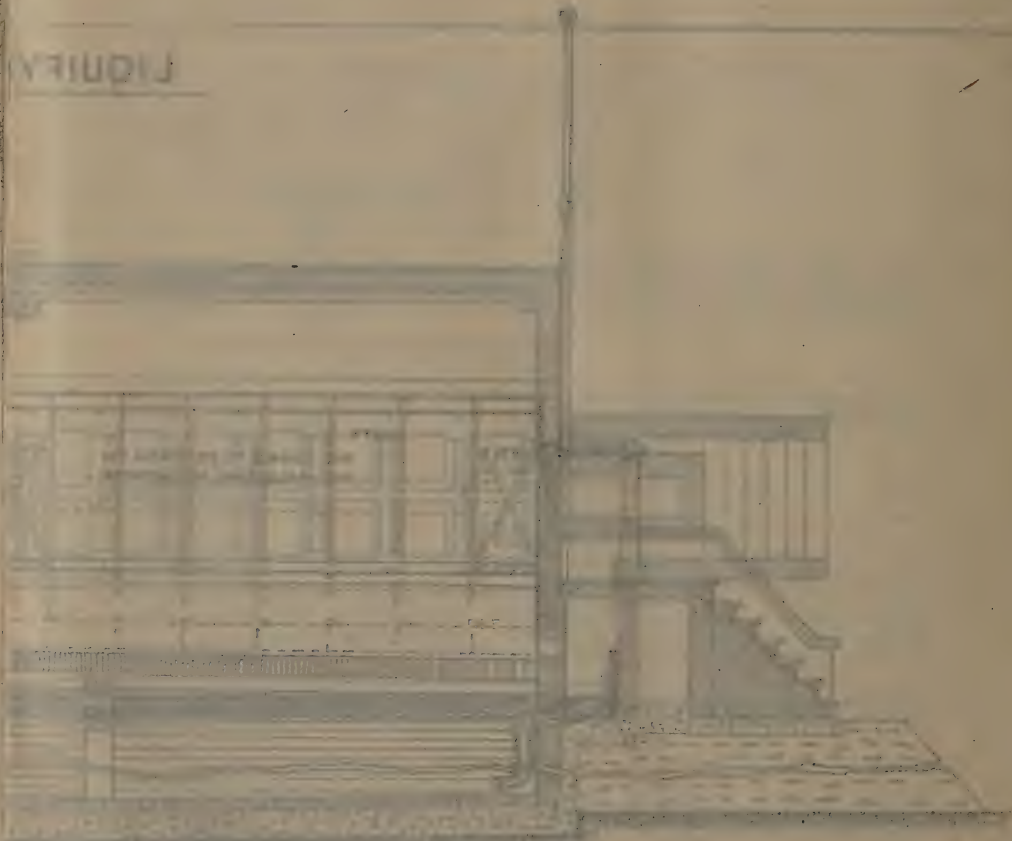
WALLA WALLA

EMERSON ARRANGEMENT WITH PATENT

FOR

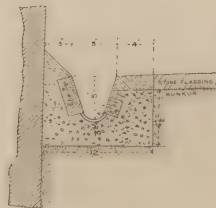
FOR

LIQUIDITY



SECTION No. 1.

SCALE 1/8 SIZE.



MATERIAL FOR DRAIN 100 L. Ft.

EXCAVATION	... 67 C. FT. @ 2 8 0 %	= Rs. 0 2 8
CONCRETE	... 49 " " 17 0 0 %	= 8 5 3
STONE	... 12-74 " " 1 2 0 P. FT.	= 14 5 4
CEMENT PLASTER	54 S. FT. " 5 0 0 %	= 2 11 2

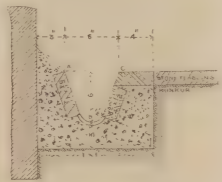
TOTAL RUPEES ... 25 8 5

SECTION No. 2.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 244.329

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	2.64864	.439144512
" 150	2.14539	.355707054
" 200	1.87258	.310475169
" 250	1.67394	.277539331
" 300	1.50972	.250312371



MATERIAL FOR DRAIN 100 L. Ft.

EXCAVATION	... 81-25 C. FT. @ 2 8 0 %	= Rs. 0 3 3
CONCRETE	... 53-35 " " 17 0 0 %	= 8 14 5
STONE	... 13-78 " " 1 2 0 P. FT.	= 15 5 1
CEMENT PLASTER	86-6 S. FT. " 5 0 0 %	= 3 5 3

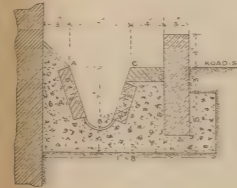
TOTAL RS. 27 15 0

SECTION No. 3.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 244.329

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	3.1248	.763492
" 150	2.6498	.622989
" 200	2.2092	.539778
" 250	1.9748	.482518
" 300	1.7811	.435173



MATERIAL FOR DRAIN 100 L. Ft.

EXCAVATION	... 97-22 C. FT. @ 2 8 0 %	= Rs. 0 3 11
CONCRETE	... 65-85 " " 17 0 0 %	= 11 3 1
STONE	... 15-61 " " 1 2 0 P. FT.	= 17 9 0
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	70-63 S. FT. " 5 0 0 %	= 3 8 8

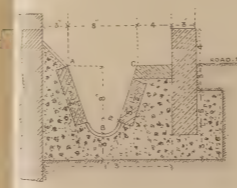
TOTAL Rs. WITH KERBING STONE. 55 15 8
TOTAL Rs. WITHOUT KERBING STONE. 32 8 8

SECTION No. 4.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 286

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	3.2078	.917453
" 150	2.6176	.748642
" 200	2.2679	.648884
" 250	2.0273	.579830
" 300	1.4813	.526618



MATERIAL FOR DRAIN 100 L. Ft.

EXCAVATION	... 114-58 C. FT. @ 2 8 0 %	= Rs. 0 4 7
CONCRETE	... 101-28 " " 17 0 0 %	= 12 9 10
STONE	... 17-69 " " 1 2 0 P. FT.	= 19 14 5
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	71-32 S. FT. " 5 0 0 %	= 3 9 1

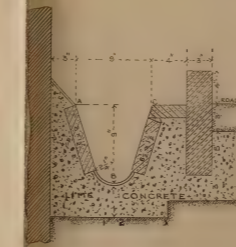
TOTAL Rs. WITH KERBING STONE. 59 12 11
TOTAL Rs. WITHOUT KERBING STONE. 36 5 11

SECTION No. 5.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 374

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	3.472	1.268528
" 150	2.8331	1.059598
" 200	2.4547	.918059
" 250	2.1943	.820660
" 300	1.9790	.740160



MATERIALS FOR DRAIN 100 L. Ft.

EXCAVATION	... 181-23 C. FT. @ 2 8 0 %	= Rs. 0 7 3
CONCRETE	... 127-63 " " 17 0 0 %	= 21 11 2
STONE	... 18-19 " " 1 2 0 P. FT.	= 21 4 2
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	78-3 S. FT. " 5 0 0 %	= 3 14 8

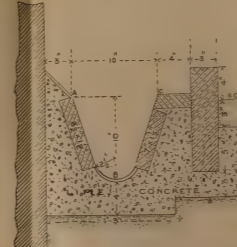
TOTAL, WITH KERBING STONE. Rs. 70 12 3
TOTAL, WITHOUT KERBING STONE. Rs. 47 5 3

SECTION No. 6.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 457

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	3.72	1.70004
" 150	3.0355	1.38723
" 200	2.6300	1.20192
" 250	2.3510	1.07442
" 300	2.1204	.96902



MATERIALS FOR DRAIN 100 L. Ft.

EXCAVATION	... 200-68 C. FT. @ 2 8 0 %	= Rs. 0 8 0
CONCRETE	... 116-98 " " 17 0 0 %	= 19 4 2
STONE	... 20-82 " " 1 2 0 P. FT.	= 23 6 9
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	87-49 S. FT. " 5 0 0 %	= 4 6 0

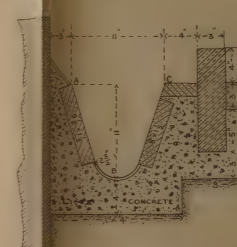
TOTAL, WITH KERBING STONE. Rs. 71 9 11
TOTAL, WITHOUT KERBING STONE. Rs. 48 2 11

SECTION No. 7.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 556

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	3.97	2.20
" 150	3.23	1.79
" 200	2.81	1.56
" 250	2.51	1.39
" 300	2.26	1.27



MATERIALS FOR DRAIN 100 L. Ft.

EXCAVATION	... 221-38 C. FT. @ 2 8 0 %	= Rs. 0 8 10
CONCRETE	... 128-50 " " 17 0 0 %	= 21 13 6
STONE	... 22-87 " " 1 2 0 P. FT.	= 25 11 8
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	91-66 S. FT. " 5 0 0 %	= 4 9 4

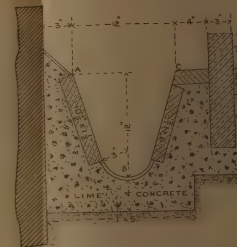
TOTAL, WITH KERBING STONE. Rs. 75 2 4
TOTAL, WITHOUT KERBING STONE. Rs. 51 11 4

SECTION No. 8.

SCALE 1/8 SIZE.

AREA A. B. C. IN S. FT. = 74009

GRADIENT.	VELOCITY IN L. FT. PER SECOND.	DISCHARGE IN C. FT. PER SECOND.
1 IN 100	4.33	2.91
" 150	3.54	2.70
" 200	3.06	2.27
" 250	2.74	2.17
" 300	2.49	1.84



MATERIALS FOR DRAIN 100 L. Ft.

EXCAVATION	... 254-07 C. FT. @ 2 8 0 %	= Rs. 0 10 2
CONCRETE	... 136-34 " " 17 0 0 %	= 23 2 10
STONE	... 24-47 " " 1 2 0 P. FT.	= 27 8 5
KERBING STONE	25-00 " " 0 15 0 "	= 23 7 0
CEMENT PLASTER	95-80 S. FT. " 5 0 0 %	= 4 12 8

TOTAL, WITH KERBING STONE. Rs. 79 9 1
TOTAL, WITHOUT KERBING STONE. Rs. 56 2 1

Section No. 100 L. PL.

AREA A. B. C. IN S. P. 100 L. PL.

SCALE IN SIZE IN INCHES

ITEM	QUANTITY	UNIT
Excavation	100	CY
Concrete	100	CY
Stone	100	CY
Cement	100	CY
Plaster	100	CY



MATERIAL FOR DRAIN 100 L. PL.

ITEM	QUANTITY	UNIT
Excavation	100	CY
Concrete	100	CY
Stone	100	CY
Cement	100	CY
Plaster	100	CY

TOTAL RUPEES ... 25 8 2

RANGOON MUNICIPALITY

GENERAL PLAN

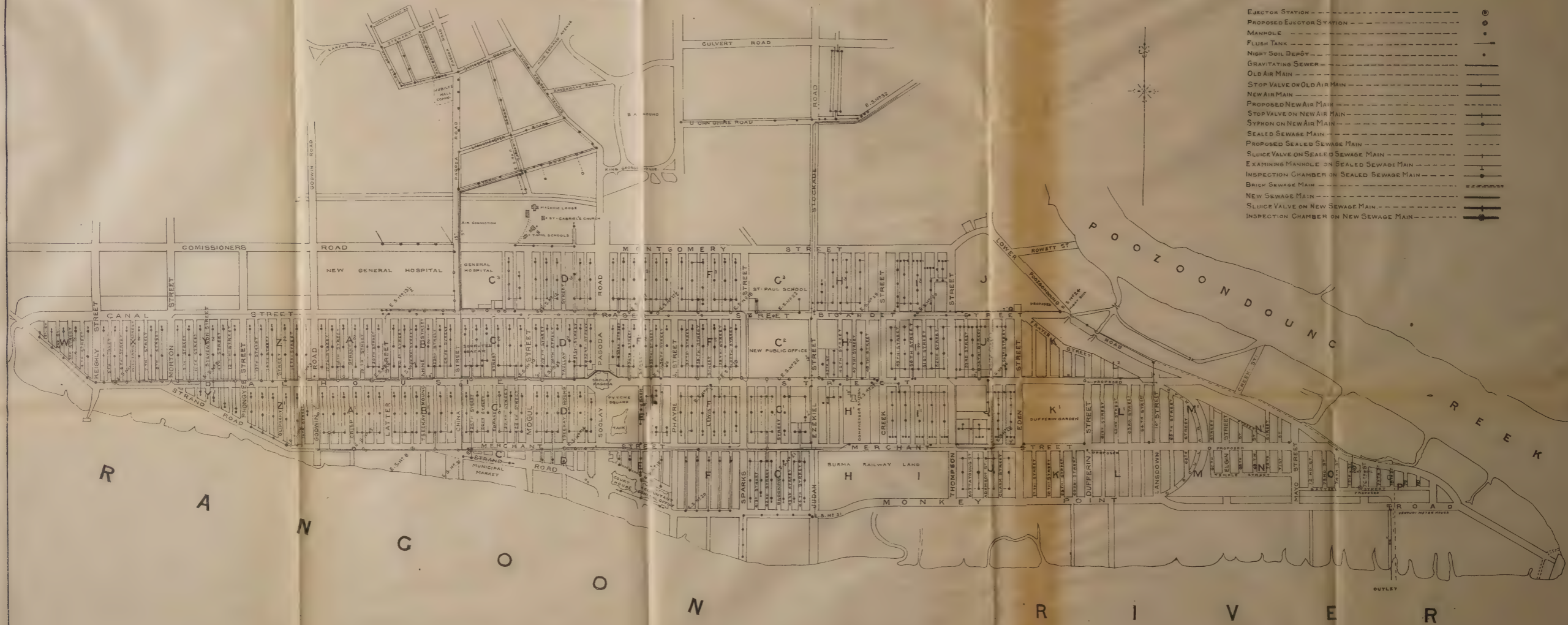
OF

RANGOON SEWERAGE ON THE SHONÉ & AULT HYDRO PNEUMATIC SYSTEM

PLATE No 83

REFERENCE

EJECTOR STATION	— — — — —	⊙
PROPOSED EJECTOR STATION	— — — — —	⊙
MANHOLE	— — — — —	•
FLUSH TANK	— — — — —	•
NIGHT SOIL DEPOT	— — — — —	•
GRAVITATING SEWER	— — — — —	—
OLD AIR MAIN	— — — — —	—
STOP VALVE ON OLD AIR MAIN	— — — — —	+
NEW AIR MAIN	— — — — —	—
PROPOSED NEW AIR MAIN	— — — — —	—
STOP VALVE ON NEW AIR MAIN	— — — — —	+
SYPHON ON NEW AIR MAIN	— — — — —	—
SEALED SEWAGE MAIN	— — — — —	—
PROPOSED SEALED SEWAGE MAIN	— — — — —	—
SLUICE VALVE ON SEALED SEWAGE MAIN	— — — — —	+
EXAMINING MANHOLE ON SEALED SEWAGE MAIN	— — — — —	+
INSPECTION CHAMBER ON SEALED SEWAGE MAIN	— — — — —	+
BRICK SEWAGE MAIN	— — — — —	—
NEW SEWAGE MAIN	— — — — —	—
SLUICE VALVE ON NEW SEWAGE MAIN	— — — — —	+
INSPECTION CHAMBER ON NEW SEWAGE MAIN	— — — — —	+



PLAN OF

GENERAL

OF

SEWERAGE ON THE SHORE
SYSTEM



SINGAPORE DRAINAGE

KEY PLAN OF SCHEME

PLATE N° 84.



Scale of 16 Chains to an Inch
Chains 0 1 2 3 4 5 6 7 8 9 10 11 12 Furlongs

2

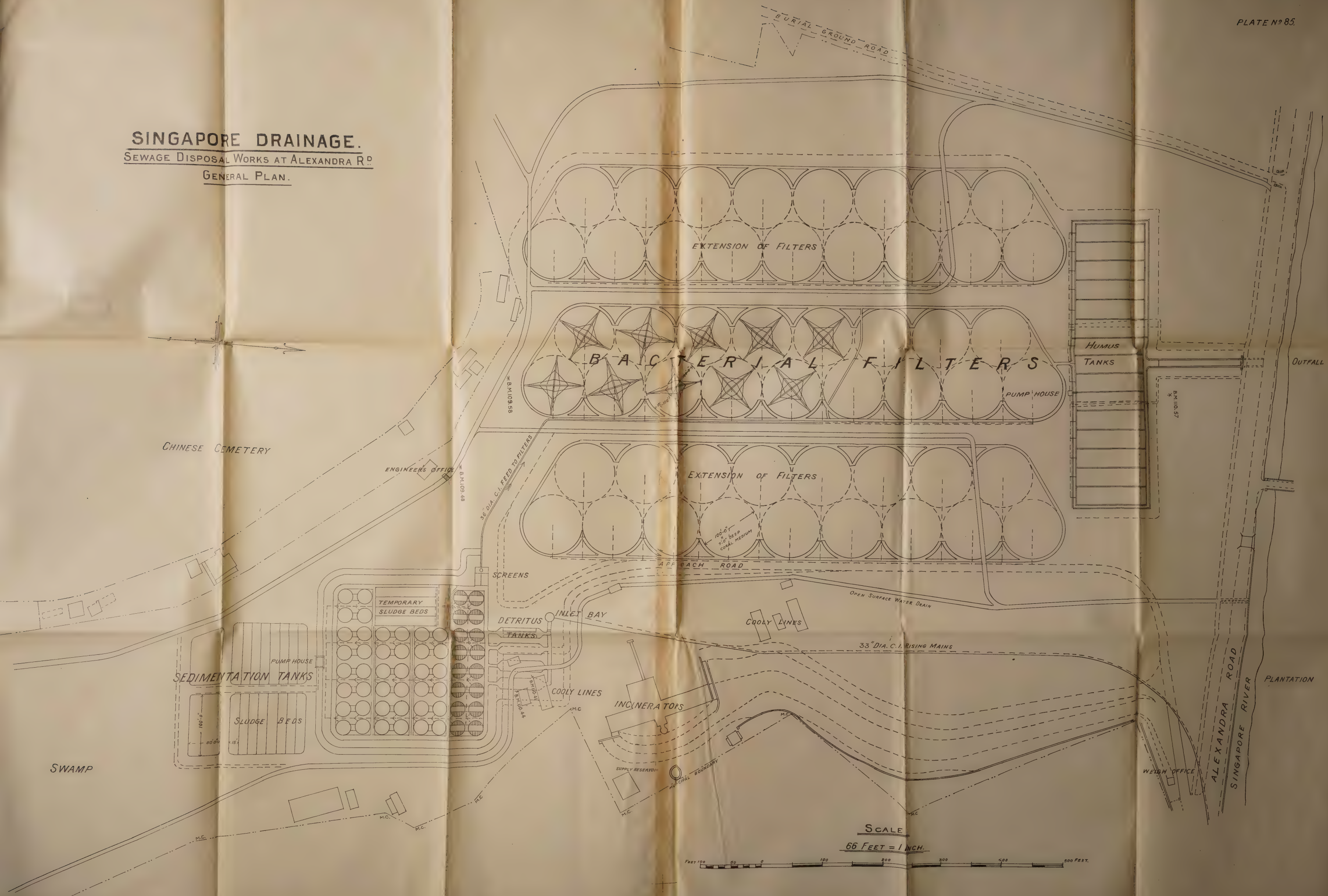
SOUTH



CENTRAL DISTRICT



SINGAPORE DRAINAGE.
SEWAGE DISPOSAL WORKS AT ALEXANDRA R^d.
GENERAL PLAN.



SINGAPORE
SEWAGE DISPOSAL
GEN

CHINESE



